



<b>SITE NAME:</b> WIEDEMAN 25-5 FAC							<b>DATE:</b> 5/10/2024	<b>REM. PROJECT #:</b> 34243	<b>WEATHER:</b> 50S CLOUDY		
<b>SITE DIRECTIONS:</b>							<b>CLIENT:</b> Noble				
<b>LEGALS AND LAT/LONG:</b> 40.43398, -104.807159							<b>TASMAN PERSONNEL:</b> RY, LM				
<b>SOIL TYPES:</b> Well Graded Sand - SW							<b>SURFACE GRADIENT:</b> South				
<b>SOIL SAMPLING</b>							<b>FACILITY INFRASTRUCTURE</b>				
Date/Time	Soil Sample ID	PID (ppm)	Visual	Olfactory	Photo?	Grab or Lab Sample?	EQUIPMENT		Quantity		
							Above Ground Storage Tank (AST)		4		
5/10/2024 13:05	AST01@0-6"	0.3	No Staining	No Odor	Yes	Lab	Buried or Partially Buried Vessel		0		
5/10/2024 13:03	AST02@0-6"	0.5	No Staining	No Odor	Yes	Lab	Separator		2		
5/10/2024 13:01	AST03@0-6"	0.2	No Staining	No Odor	Yes	Lab	Emission Control Device (ECD)		3		
5/10/2024 12:59	AST04@0-6"	9.3	No Staining	No Odor	Yes	Lab	Dump Line		2		
5/10/2024 10:20	SEP01-FL@3'	0.7	No Staining	No Odor	Yes	Lab	Wellhead				
5/10/2024 10:21	SEP02-FL@3'	0.3	No Staining	No Odor	Yes	Lab	Flowline				
5/10/2024 10:27	SEP01-DL@4'	10.4	HC Staining	Slight HC Odor	Yes	Lab	Other:				
5/10/2024 10:28	SEP02-DL@4'	3.4	No Staining	No Odor	Yes	Lab	<b>Soil Loads Removed</b>				
5/10/2024 11:00	FLARE01@0-6"	0.1	No Staining	No Odor	Yes	Grab	<b>IMPACTED SOIL IDENTIFIED?</b>				
5/10/2024 11:01	FLARE02@0-6"	0.1	No Staining	No Odor	Yes	Grab	<b>ESTIMATED VOLUME OF IMPACTS:</b>				
5/10/2024 11:02	FLARE03@0-6"	0.1	No Staining	No Odor	Yes	Grab	<b>Date</b>		<b>Number</b>		<b>CY</b>
5/10/2024 11:03	MH01@0-6"	0.0	No Staining	No Odor	Yes	Grab					
5/10/2024 11:45	SEP02-DL@3'	395.4	HC Staining	HC Odor	Yes	Lab					
5/10/2024 11:55	DL01-01@3'	4.6	HC Staining	Slight HC Odor	Yes	Lab					
5/10/2024 13:25	BKG01@0-6"	0.1	No Staining	No Odor	Yes	Lab					
5/10/2024 13:31	BKG01@3'	0.0	No Staining	No Odor	Yes	Lab	<b>Total Removed</b>		0		0
5/10/2024 13:33	BKG01@4'	0.0	No Staining	No Odor	Yes	Lab	<b>Disposal Facility:</b>				
							<b>Groundwater Recovery</b>				
							<b>DATE GW ENCOUNTERED:</b> 5/10/2024			<b>DEPTH:</b> 4'	
							<b>GROUNDWATER IN CONTACT WITH IMPACTED SOIL?</b> Groundwater in contact with soil impacts.				
							<b>LNAPL OR SHEEN OBSERVED ON GW?</b> Light sheen observed on GW.				
<b>GROUNDWATER SAMPLING</b>							<b>Date</b>		<b>BBLS</b>		
Date/Time	Groundwater Sample ID	Depth Collected	Turbid?	Sheen?	Odor?	Photo?					
5/10/2024 10:30	GW01	4'	Low Turbidity	Light Sheen	Light HC Odor	Yes					
							<b>Total Removed</b>		0		
							<b>Disposal Facility:</b>				



**GENERAL OBSERVATION FORM**

Client: Noble

Site Area/AOC: Wiedeman 25-5

Date: 5/10/2024

Task/Location Description: \_\_\_\_\_

Daily Forecast/Weather: 50s, Cloudy

Personnel: <sup>RY, LM</sup> \_\_\_\_\_

Description of Activities: Tank Battery Decommissioning

Time	Description
	No PWV on site at time of decommissioning, was removed prior to decommissioning date.
	Samples taken at the separator flowline risers correspond to two associated flowlines:
	SEP01-FL corresponds to the WIEDEMAN 4-5 FL (REM #33975)
	SEP02-FL corresponds to the WIEDEMAN 3-5 FL (REM #33977)
	Two samples were taken for the second separator dumpline - SEP02-DL@3', and SEP02-DL@4'
	SEP02-DL@3' was taken from the excavation in the area that was stained and most likely to be impacted
	SEP02-DL@4' was taken directly adjacent to the location where the groundwater sample was collected.

**TABLE 1**  
**FIELD DATA SUMMARY TABLE**  
**NOBLE - 100322**  
**WIEDEMAN 25-5, WELD COUNTY, COLORADO**  
**REM # 34243**

Sample ID	Sample Date	Depth (ft.)	GPS Data		PDOP Value	VOC Concentration (ppm)
			Latitude	Longitude		
AST01@0-6"	5/10/2024	0.5	40.433049	-104.807206	0.9	0.3
AST02@0-6"	5/10/2024	0.5	40.433003	-104.807206	0.9	0.5
AST03@0-6"	5/10/2024	0.5	40.432955	-104.807198	1.0	0.2
AST04@0-6"	5/10/2024	0.5	40.432953	-104.807129	NC	9.3
DL01-01@3'	5/10/2024	3	40.433174	-104.807176	0.9	4.6
FLARE01@0-6"	5/10/2024	0.5	40.433332	-104.807307	NC	0.1
FLARE02@0-6"	5/10/2024	0.5	40.433357	-104.807281	0.9	0.1
FLARE03@0-6"	5/10/2024	0.5	40.433413	-104.807310	0.9	0.1
MH01@0-6"	5/10/2024	0.5	40.433461	-104.807178	1.0	0.0
SEP01-DL@4'	5/10/2024	4	40.433317	-104.807186	0.9	10.4
SEP01-FL@3'	5/10/2024	3	40.433427	-104.807141	0.9	0.7
SEP02-DL@3'	5/10/2024	3	40.433390	-104.807232	0.9	395.4
SEP02-DL@4'	5/10/2024	4	40.433393	-104.807200	NC	3.4
SEP02-FL@3'	5/10/2024	3	40.433423	-104.807111	0.9	0.3
GW01	5/10/2024	4	40.433392	-104.807194	1.0	NC
BKG01@0-6"	5/10/2024	0.5	40.433958	-104.806844	0.8	0.1
BKG01@3'	5/10/2024	3	40.433958	-104.806844	0.8	0.0
BKG01@4'	5/10/2024	4	40.433958	-104.806844	0.8	0.0

1. Global Positioning System (GPS) data is provided in decimal degrees using North American Datum (NAD) 83 UTMZone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

ft. = Feet

NC = Not Collected

TABLE 2  
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA  
NOBLE - 100322  
WIEDEMAN 25-5, WELD COUNTY, COLORADO  
REM # 34243

Sample ID	Sample Date	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	1,2,4-Trimethyl-Benzene (mg/kg)	1,3,5-Trimethyl-Benzene (mg/kg)	Naphthalene (mg/kg)	TPH (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500	500**		
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	500**		
AST01@0-6"	5/10/2024	0.5	<0.0020	<0.0050	<0.005	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
AST02@0-6"	5/10/2024	0.5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
AST03@0-6"	5/10/2024	0.5	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
AST04@0-6"	5/10/2024	0.5	<0.0020	<0.0050	<0.0050	0.023	<b>0.046</b>	<b>0.019</b>	<b>0.018</b>	58.9	2.9	56	<50
DL01-01@3'	5/10/2024	3	<b>0.0048</b>	<0.0050	<0.0050	<0.010	<b>0.091</b>	<0.0050	<b>0.0087</b>	0.96	0.96	<50	<50
SEP01-DL@4'	5/10/2024	4	<b>0.0084</b>	<0.0050	<0.0050	0.010	<b>0.012</b>	<b>0.013</b>	<0.0038	0.89	0.89	<50	<50
SEP01-FL@3'	5/10/2024	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
SEP02-DL@3'	5/10/2024	3	<b>0.013</b>	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	13	13	<50	<50
SEP02-DL@4'	5/10/2024	4	<0.0020	0.0057	<0.0050	0.048	<b>0.014</b>	<b>0.013</b>	<0.0038	1.3	1.3	<50	<50
SEP02-FL@3'	5/10/2024	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50

1. **Bold** values exceed the ECMC Table 915-1 limit(s)
  2. Pink & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)
  3. \* Indicates laboratory minimum detection limit in excess of SSL
  4. \*\* Summation of GRO+DRO+ORO must be less than 500 mg/kg
- ft. = Feet  
mg/kg = Milligrams per kilogram  
< = Analytical result is less than the indicated laboratory reporting limit

TABLE 3  
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA  
NOBLE - 100322  
WIEDEMAN 25-5, WELD COUNTY, COLORADO  
REM # 34243

Sample ID	Sample Date	Depth (ft)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo (a) Anthracene (mg/kg)	Benzo (a) Pyrene (mg/kg)	Benzo (b) Fluoranthene (mg/kg)	Benzo (k) Fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo (a,h) Anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno (1,2,3-cd) Pyrene (mg/kg)	Pyrene (mg/kg)	1-Methyl - Naphthalene (mg/kg)	2-Methyl - Naphthalene (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			360	1800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
AST01@0-6"	5/10/2024	0.5	<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@0-6"	5/10/2024	0.5	<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@0-6"	5/10/2024	0.5	<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
AST04@0-6"	5/10/2024	0.5	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0145	<0.00500	<0.00500	<b>0.0439</b>	<b>0.0961</b>
DL01-01@3'	5/10/2024	3	<0.00500	<0.00500	<0.00500	0.00522	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00784	<0.00500	<0.00500	0.00555
SEP01-DL@4'	5/10/2024	4	<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	0.00669
SEP01-FL@3'	5/10/2024	3	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP02-DL@3'	5/10/2024	3	<0.00500	<0.00500	0.00521	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP02-DL@4'	5/10/2024	4	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<b>0.00607</b>	0.0115
SEP02-FL@3'	5/10/2024	3	<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

1. **Bold** values exceed the ECMC Table 915-1 limit(s)
  2. Pink & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)
  3. \* Indicates laboratory minimum detection limit in excess of SSL
- ft. = Feet  
mg/kg = Milligrams per kilogram  
< = Analytical result is less than the indicated laboratory reporting limit

**TABLE 4**  
**SUMMARY OF SOIL SUITABILITY FOR RECLAMATION**  
**NOBLE - 100322**  
**WIEDEMAN 25-5, WELD COUNTY, COLORADO**  
**REM # 34243**

Sample ID	Sample Date	Depth (ft)	pH (Standard Units)	EC (mmhos/cm)	SAR (Standard Units)	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
AST01@0-6"	5/10/2024	0.5	7.55	0.013	0.018	<2.00
AST02@0-6"	5/10/2024	0.5	8.22	0.031	0.020	<2.00
AST03@0-6"	5/10/2024	0.5	<b>8.72</b>	0.114	0.145	<2.00
AST04@0-6"	5/10/2024	0.5	<b>8.64</b>	0.122	0.319	<2.00
DL01-01@3'	5/10/2024	3	<b>8.47</b>	0.200	0.318	<2.00
SEP01-DL@4'	5/10/2024	4	8.10	0.192	0.182	<2.00
SEP01-FL@3'	5/10/2024	3	<b>8.51</b>	0.145	0.520	<2.00
SEP02-DL@3'	5/10/2024	3	<b>8.30</b>	0.229	0.440	<2.00
SEP02-DL@4'	5/10/2024	4	8.20	0.190	0.202	<2.00
SEP02-FL@3'	5/10/2024	3	<b>8.65</b>	0.114	0.187	<2.00
BKG01@0-6"	5/10/2024	0.5	7.95	0.376	0.341	NA
BKG01@3'	5/10/2024	3	7.89	0.959	1.340	NA
BKG01@4'	5/10/2024	4	8.03	0.961	1.290	NA
Maximum Root Background Concentration (0 - 3 ft)			7.95	-	-	-
Mean Root Background Concentration (0-3 ft)			7.92	-	-	-
Maximum Background Concentration			8.03	-	-	-
Mean Background Concentration			7.96	-	-	-

1. **Bold** faced values exceed the ECMC Table 915-1 limit(s)

NA - Not analyzed

ft. = Feet

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

TABLE 5  
SUMMARY OF METALS IN SOIL CHEMISTRY DATA  
NOBLE - 100322  
WIEDEMAN 25-5, WELD COUNTY, COLORADO  
REM # 34243

Sample ID	Sample Date	Depth (ft)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			0.68	15000	71	0.3	3100	400	1500	390	390	23000
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
AST01@0-6"	5/10/2024	0.5	<b>2.56</b>	35.7	<0.200	<0.30	5.54	4.41	5.83	<0.260	<0.0200	19.7
AST02@0-6"	5/10/2024	0.5	<b>2.28</b>	29.2	<0.200	<0.30	4.55	3.89	4.64	<0.260	<0.0200	17.4
AST03@0-6"	5/10/2024	0.5	<b>2.30</b>	42.6	<0.200	<0.30	4.83	3.67	4.85	<0.260	<0.0200	20.0
AST04@0-6"	5/10/2024	0.5	<b>3.78</b>	39.7	0.205	<0.30	5.11	5.41	5.95	<0.260	<0.0200	25.5
DL01-01@3'	5/10/2024	3	<b>3.03</b>	61.0	<0.200	<0.30	5.57	4.73	5.86	<0.260	0.0213	23.3
SEP01-DL@4'	5/10/2024	4	<b>3.02</b>	69.7	<0.200	<0.30	5.58	4.81	6.08	<0.260	0.0217	22.0
SEP01-FL@3'	5/10/2024	3	<b>2.47</b>	<b>106</b>	0.264	<0.30	18.5	10.0	8.99	<0.260	0.0643	57.3
SEP02-DL@3'	5/10/2024	3	<b>3.33</b>	72.5	<0.200	<0.30	4.51	3.99	5.97	<0.260	<0.0200	19.9
SEP02-DL@4'	5/10/2024	4	<b>2.91</b>	75.2	<0.200	<0.30	7.47	6.11	7.28	<0.260	0.0327	32.3
SEP02-FL@3'	5/10/2024	3	<b>3.64</b>	<b>123</b>	<b>0.382</b>	<0.30	15.9	12.9	11.2	<0.260	0.0972	64.1
BKG01@0-6"	5/10/2024	0.5	3.84	57.7	<0.200	<0.30	6.18	5.96	6.23	<0.260	0.0244	34.9
BKG01@3'	5/10/2024	3	3.59	76.4	<0.200	<0.30	6.78	5.93	8.03	<0.260	0.0300	30.1
BKG01@4'	5/10/2024	4	3.88	90.9	0.229	<0.30	8.68	7.17	10.0	<0.260	0.0371	41.2
Maximum Root Zone Background Concentration X 1.25 (0-3 ft.)			4.80	95.5	-	-	-	-	-	-	-	-
Mean Root Zone Concentration X 1.25 (0-3 ft.)			4.64	83.8	-	-	-	-	-	-	-	-
Maximum Background Concentration X 1.25			4.85	114	0.286	-	-	-	-	-	-	-
Mean Background Concentration X 1.25			4.71	93.8	0.286	-	-	-	-	-	-	-

1. **Bold** values exceed the ECMC Table 915-1 limit(s)

2. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)

\* Indicates laboratory minimum detection limit in excess of SSL

ft. = Feet

mg/kg = Milligrams per kilogram

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

**TABLE 6**  
**SUMMARY OF GROUNDWATER ELEVATION DATA AND ORGANIC CHEMISTRY DATA**  
**NOBLE - 100322**  
**WIEDEMAN 25-5, WELD COUNTY, COLORADO**  
**REM # 34243**

Sample ID	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-Trimethyl-Benzene (µg/L)	1,3,5-Trimethyl-Benzene (µg/L)	TOC Elevation (ft)	Depth to Groundwater Below TOC (ft)	Depth to Groundwater Below Ground Surface (ft)	Groundwater Elevation (ft)	LNAPL Thickness (ft)
ECMC Table 915-1 Limits		5.0	560	700	1400	140	67	67					
GW01	05/10/24	RP	RP	RP	RP	RP	RP	RP	NA	NA	4	NA	NA

1. Bold values exceed the ECMC limit(s)
  2. Red highlighted groundwater analytical values indicate a regulatory exceedance
- RP - Results Pending  
 NA - Not applicable  
 µg/L = Micrograms per liter  
 ft. = Feet

### Photographic Log



<b>Equipment ID:</b>		<b>Equipment Type:</b>		<b>Equipment ID:</b> SEP01-DL@4'		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b> DUMPLINES BEING PULLED				<b>Notes/Conditions:</b>			

### Photographic Log

					
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>
<b>Notes/Conditions:</b> GROUNDWATER ENCOUNTERED, SEE GW01			<b>Notes/Conditions:</b>		

### Photographic Log



<b>Equipment ID:</b> SEP02-FL@3'		<b>Equipment Type:</b>		<b>Equipment ID:</b> FLARE01@0-6"		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>				<b>Notes/Conditions:</b>			

Photographic Log



<b>Equipment ID:</b> FLARE02@0-6"			<b>Equipment Type:</b>			<b>Equipment ID:</b> FLARE03@0-6"			<b>Equipment Type:</b>		
<b>Material:</b>		<b>Volume:</b>		<b>Contents:</b>		<b>Material:</b>		<b>Volume:</b>		<b>Contents:</b>	
<b>Notes/Conditions:</b>						<b>Notes/Conditions:</b>					

**Photographic Log**


<b>Equipment ID:</b> MH01@0-6"		<b>Equipment Type:</b>		<b>Equipment ID:</b> DL01-01@3'		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>				<b>Notes/Conditions:</b>			

**Photographic Log**


<b>Equipment ID:</b> SEP02-DL@3'			<b>Equipment Type:</b>			<b>Equipment ID:</b> GW01			<b>Equipment Type:</b>		
<b>Material:</b>		<b>Volume:</b>		<b>Contents:</b>		<b>Material:</b>		<b>Volume:</b>		<b>Contents:</b>	
<b>Notes/Conditions:</b>						<b>Notes/Conditions:</b>					

Photographic Log

					
<p><b>Equipment ID:</b>AST02@0-6"      <b>Equipment Type:</b></p> <p><b>Material:</b>      <b>Volume:</b>      <b>Contents:</b></p> <p><b>Notes/Conditions:</b></p>					

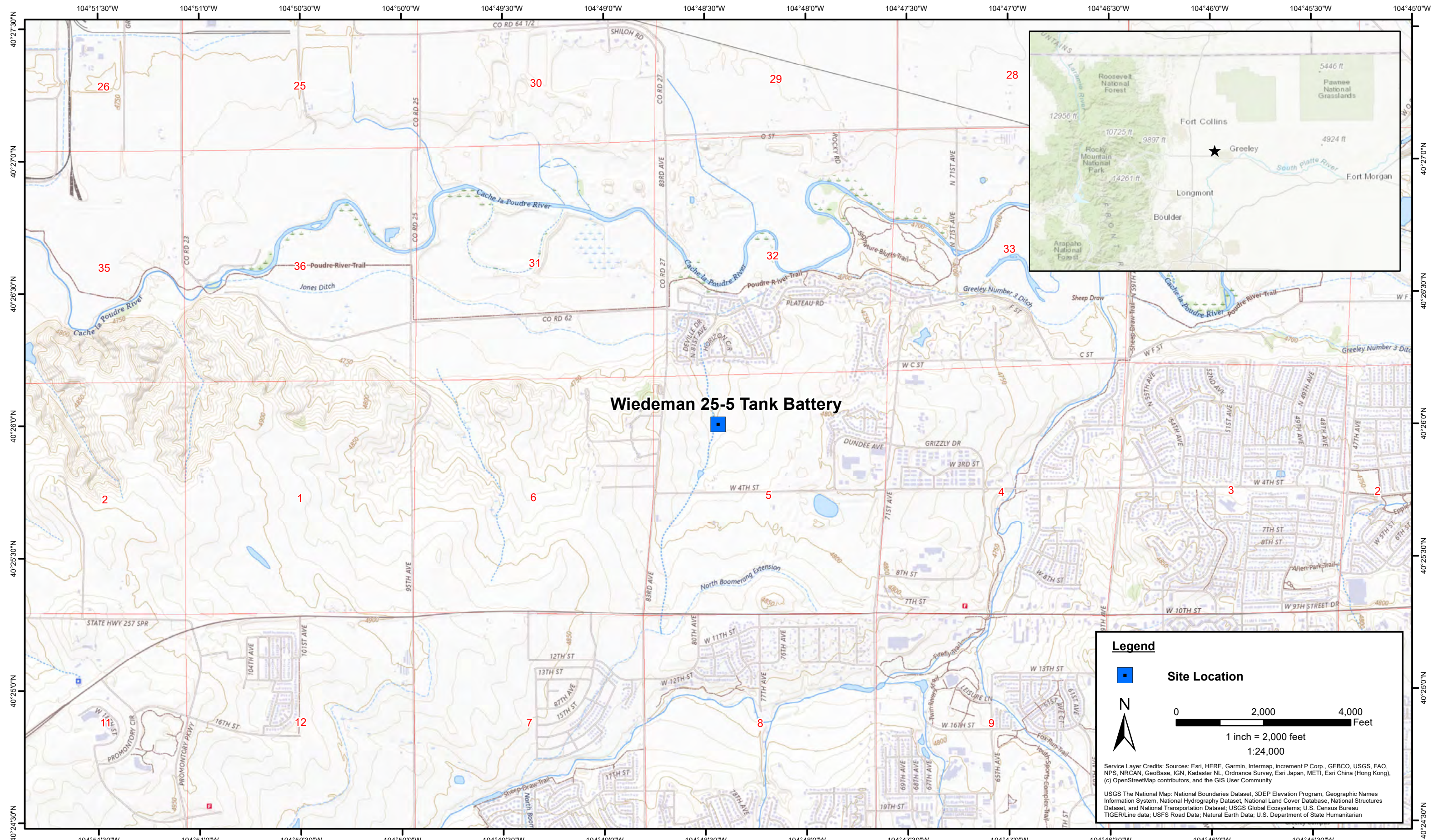
Photographic Log

					
<p><b>Material:</b></p>	<p><b>Volume:</b></p>	<p><b>Contents:</b></p>	<p><b>Material:</b></p>	<p><b>Volume:</b></p>	<p><b>Contents:</b></p>
<p><b>Notes/Conditions:</b></p>			<p><b>Notes/Conditions:</b></p>		

**Photographic Log**





<b>Equipment ID:</b> <small>BKG01</small>		<b>Equipment Type:</b>		<b>Equipment ID:</b>		<b>Equipment Type:</b>	
<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>		<b>Material:</b>	<b>Volume:</b>	<b>Contents:</b>	
<b>Notes/Conditions:</b>				<b>Notes/Conditions:</b>			

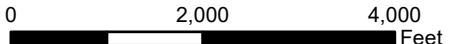


**Wiedeman 25-5 Tank Battery**

**Legend**

 **Site Location**





1 inch = 2,000 feet  
1:24,000

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian

DATE: June 2024  
 DESIGNED BY: J. Whritenour  
 DRAWN BY: L. Reed

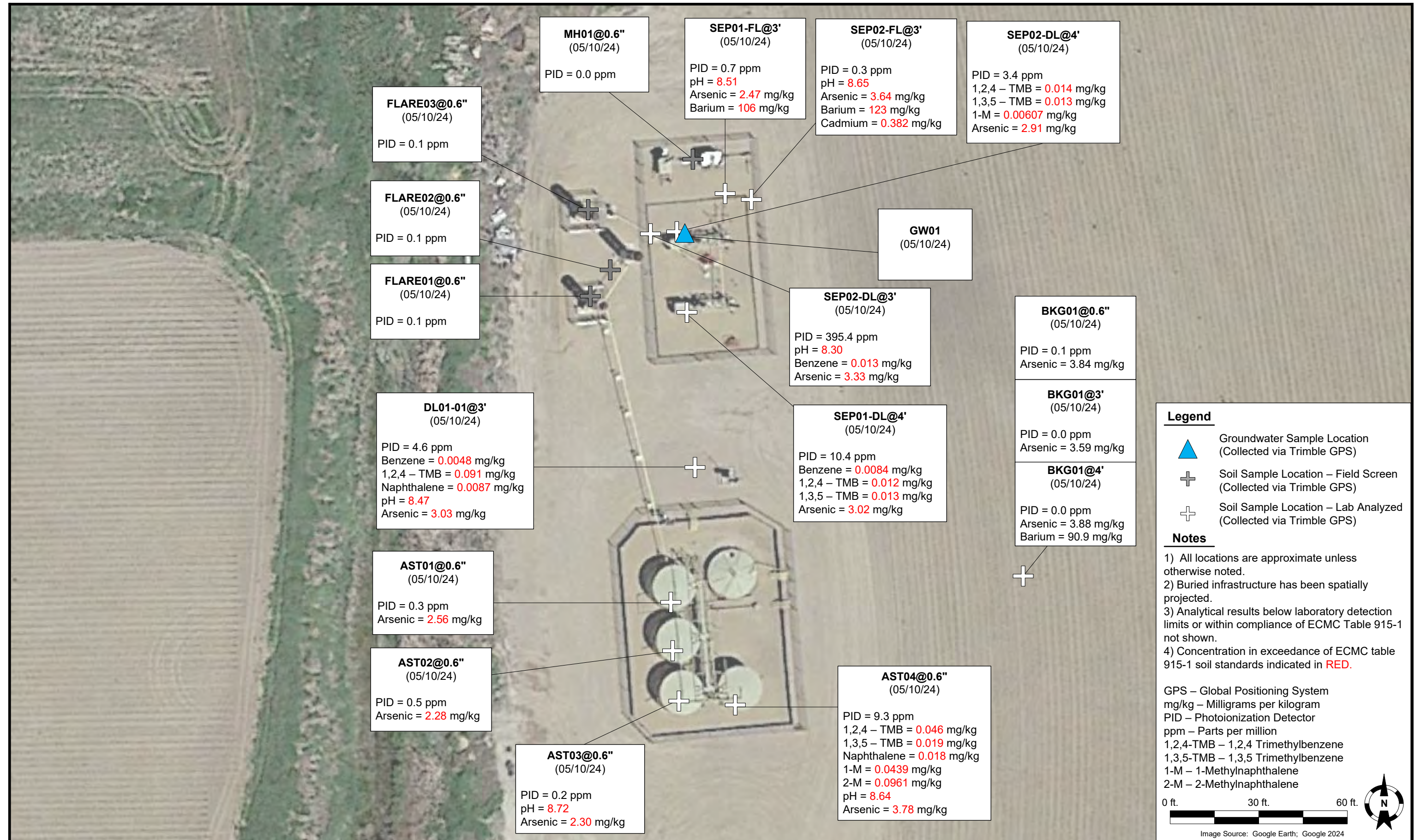


**Tasman, Inc.**  
 6855 W. 119th Ave  
 Broomfield, CO 80020

**Noble Energy, Inc. – DJ Basin**  
**Wiedeman 25-5 Tank Battery**  
 NWNW, Section 5, Township 5 North, Range 66 West  
 Weld County, Colorado

Site Location Map

Figure  
1



**Legend**

- ▲ Groundwater Sample Location (Collected via Trimble GPS)
- ⊕ Soil Sample Location – Field Screen (Collected via Trimble GPS)
- ⊕ Soil Sample Location – Lab Analyzed (Collected via Trimble GPS)

**Notes**

- 1) All locations are approximate unless otherwise noted.
- 2) Buried infrastructure has been spatially projected.
- 3) Analytical results below laboratory detection limits or within compliance of ECMC Table 915-1 not shown.
- 4) Concentration in exceedance of ECMC table 915-1 soil standards indicated in RED.

GPS – Global Positioning System  
mg/kg – Milligrams per kilogram  
PID – Photoionization Detector  
ppm – Parts per million  
1,2,4-TMB – 1,2,4 Trimethylbenzene  
1,3,5-TMB – 1,3,5 Trimethylbenzene  
1-M – 1-Methylnaphthalene  
2-M – 2-Methylnaphthalene

0 ft. 30 ft. 60 ft.

Image Source: Google Earth; Google 2024

DATE: 06/12/2024

DESIGNED BY: JW

DRAWN BY: RY

**TASMAN**  
GEOSCIENCES

Tasman Geosciences, Inc.  
6855 W 119<sup>th</sup> Avenue  
Broomfield, CO 80020

**Noble Energy, Inc. – DJ Basin**  
**Wiedeman 25-5**  
NWNW, Section 5, Township 5 North, Range 66 West  
Weld County, Colorado

Tank Battery Closure & Soil  
Analytical Results Map  
(05/10/2024)

FIGURE  
2

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 17, 2024

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

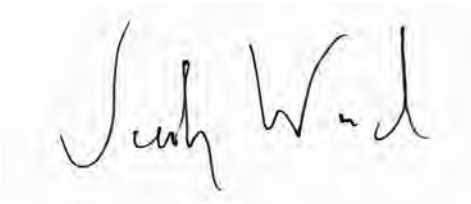
Broomfield, CO 80020

RE: Noble - Wiedeman 25-5 FAC

Work Order #2405166

Enclosed are the results of analyses for samples received by Summit Scientific on 05/10/24 17:52. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Jacob Wood". The signature is written in a cursive style with a large initial "J" and "W".

Jacob Wood For Paul Shrewsbury

President



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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SEP01-FL@3'	2405166-01	Soil	05/10/24 10:20	05/10/24 17:52
SEP02-FL@3'	2405166-02	Soil	05/10/24 10:21	05/10/24 17:52
SEP01-DL@4'	2405166-03	Soil	05/10/24 10:27	05/10/24 17:52
SEP02-DL@3'	2405166-04	Soil	05/10/24 11:45	05/10/24 17:52
SEP02-DL@4'	2405166-05	Soil	05/10/24 10:28	05/10/24 17:52
DL01-01@3'	2405166-06	Soil	05/10/24 11:55	05/10/24 17:52
AST01@0-6"	2405166-07	Soil	05/10/24 13:05	05/10/24 17:52
AST02@0-6"	2405166-08	Soil	05/10/24 13:03	05/10/24 17:52
AST03@0-6"	2405166-09	Soil	05/10/24 13:01	05/10/24 17:52
AST04@0-6"	2405166-10	Soil	05/10/24 12:59	05/10/24 17:52
BKG01@0-6"	2405166-11	Soil	05/10/24 13:25	05/10/24 17:52
BKG01@3'	2405166-12	Soil	05/10/24 13:31	05/10/24 17:52
BKG01@4'	2405166-13	Soil	05/10/24 13:33	05/10/24 17:52

**Case Narrative**

This revised report has been reissued per client request on 6/17/2024.  
Original report sent on 6/11/2024 at 08:14 MT.

Summit Scientific

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

		<b>Send Data To:</b>	<b>Send Invoice To:</b>
Client: Noble/Tasman	Project Manager: Jake Whritenour		Company: Chevron
Address: 6855 W. 119th Ave.	E-Mail: Jwhritenour@tasman-geo.com		Project Name/Location:
City/State/Zip: Broomfield/CO/ 80020			AFE#: UWRWE-A3538-ABN
Phone:	Project Name: Wiedeman 25-5 FAC		PO/Billing Codes:
Sampler Name: Ryan Yavinsky/Luke Moran	Project Number:		Contact: Mike Montoya

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Air-Canister #	Other	Analysis Requested							Special Instructions
					HCl	HNO3	None	Other	Water	Soil			VOC - 915	TPH - 915	PAH - 915	Metals - 915	pH, EC, SAR	Boron - HWS		
1	SEP01-FL@3'	5/10/24	1020	1			X			X			X	X	X	X	X	X		
2	SEP02-FL@3'		1021																	
3	SEP01-DL@4'		1027																	
4	SEP02-DL@3'		1145																	
5	SEP02-DL@4'		1028																	
6	DLO1-DL@3'		1155																	
7	AST01@0-6"		1305																	
8	AST02@0-6"		1303																	
9	AST03@0-6"		1301																	
10	AST04@0-6"		1259																	
11	BK601@0-6"		1325																	
12	BK601@3'		1331																	
13	BK601@4'		1333																	
14																				
15																				

Relinquished by: <i>[Signature]</i>	Date/Time: 5/10/24 1540	Received by: Tasman Lock Box	Date/Time: 5/10/24 1540	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: <i>Tasman Lock Box</i>	Date/Time: 5/10/24 1752	Received by: <i>[Signature]</i>	Date/Time: 5/10/24 1752	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: 84	Corrected Temperature: 8	IR gun #:		HNO3 lot #:		

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 24051660

Client: Nordtastman

Client Project ID: Wiedeman 29-5 FAC

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

Airbill #:

Matrix (Check all that apply)

Air

Soil/Solid

Water

Other

Temp (°C)

Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OUT OF
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coll, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water - is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column - HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

SN  
Custodian Printed Name

5/9/24  
Date/Time



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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP01-FL@3'**  
**2405166-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHE0402	05/13/24	05/14/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0315	78.7 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0424	106 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0399	99.8 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHE0404	05/13/24	05/14/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	8.06	64.4 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP01-FL@3'**  
**2405166-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHE0371	05/13/24	05/13/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0175	52.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0215	64.6 %	40-150		"	"	"	"	

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

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHE0381	05/13/24	06/04/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 10:20**

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

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



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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP01-FL@3'**  
**2405166-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.47	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B
Barium	106	0.400	"	"	"	"	"	"
Cadmium	0.264	0.200	"	"	"	"	"	"
Copper	18.5	0.400	"	"	"	"	"	"
Lead	10.0	0.200	"	"	"	"	"	"
Nickel	8.99	0.400	"	"	"	"	"	"
Silver	0.0643	0.0200	"	"	"	"	"	"
Zinc	57.3	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	27.3	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	5.58	0.0500	"	"	"	"	"	"	
Sodium	11.4	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.520	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

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

Date Sampled: **05/10/24 10:20**

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

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



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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP01-FL@3'**  
**2405166-01 (Soil)**

**Summit Scientific**

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

<b>% Solids</b>	<b>85.3</b>	%	1	BHE0383	05/13/24	05/14/24	Calculation
-----------------	-------------	---	---	---------	----------	----------	-------------

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

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>0.145</b>	0.0100	mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>pH</b>	<b>8.51</b>		pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-FL@3'**  
**2405166-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHE0402	05/13/24	05/14/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0292	73.0 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0388	97.0 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0389	97.3 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHE0404	05/13/24	05/14/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	7.70	61.6 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-FL@3'**  
**2405166-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHE0371	05/13/24	05/13/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0204	61.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0206	61.7 %	40-150		"	"	"	"	

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

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHE0381	05/13/24	06/04/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 10:21**

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 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-FL@3'**  
**2405166-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	3.64	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B
Barium	123	0.400	"	"	"	"	"	"
Cadmium	0.382	0.200	"	"	"	"	"	"
Copper	15.9	0.400	"	"	"	"	"	"
Lead	12.9	0.200	"	"	"	"	"	"
Nickel	11.2	0.400	"	"	"	"	"	"
Silver	0.0972	0.0200	"	"	"	"	"	"
Zinc	64.1	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	34.3	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	5.74	0.0500	"	"	"	"	"	"	
Sodium	4.50	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.187	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

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

Date Sampled: **05/10/24 10:21**

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

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-FL@3'**  
**2405166-02 (Soil)**

**Summit Scientific**

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

<b>% Solids</b>	<b>83.2</b>	%	1	BHE0383	05/13/24	05/14/24	Calculation
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**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>0.114</b>	0.0100	mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>pH</b>	<b>8.65</b>		pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP01-DL@4'**  
**2405166-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>0.0084</b>	0.0020	mg/kg	1	BHE0402	05/13/24	05/14/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.010</b>	0.010	"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>0.012</b>	0.0050	"	"	"	"	"	"	
<b>1,3,5-Trimethylbenzene</b>	<b>0.013</b>	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.89</b>	0.50	"	"	"	"	"	"	

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0299	74.7 %	50-150		"	"	"	"	
<i>Surrogate: Toluene-d8</i>	0.0393	98.2 %	50-150		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0416	104 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHE0404	05/13/24	05/14/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>	10.3	82.4 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP01-DL@4'**  
**2405166-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHE0371	05/13/24	05/13/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>0.00669</b>	0.00500	"	"	"	"	"	"	

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0195	58.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0227	68.1 %	40-150		"	"	"	"	

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

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHE0381	05/13/24	06/04/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 10:27**

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 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP01-DL@4'**  
**2405166-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	3.02	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B
Barium	69.7	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	5.58	0.400	"	"	"	"	"	"
Lead	4.81	0.200	"	"	"	"	"	"
Nickel	6.08	0.400	"	"	"	"	"	"
Silver	0.0217	0.0200	"	"	"	"	"	"
Zinc	22.0	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	28.4	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	7.22	0.0500	"	"	"	"	"	"	
Sodium	4.20	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.182	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

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

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP01-DL@4'**  
**2405166-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	<b>84.8</b>			%	1	BHE0383	05/13/24	05/14/24	Calculation	

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

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	<b>0.192</b>	0.0100		mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 10:27**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	<b>8.10</b>			pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-DL@3'**  
**2405166-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>0.013</b>	0.0020	mg/kg	1	BHE0402	05/13/24	05/14/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>13</b>	0.50	"	"	"	"	"	"	

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0346	86.6 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0453	113 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0585	146 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHE0404	05/13/24	05/15/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	6.53	52.2 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-DL@3'**  
**2405166-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Acenaphthene	ND	0.00500		mg/kg	1	BHE0371	05/13/24	05/13/24	EPA 8270D SIM	
Anthracene	ND	0.00500		"	"	"	"	"	"	
<b>Benzo (a) anthracene</b>	<b>0.00521</b>	0.00500		"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500		"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500		"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500		"	"	"	"	"	"	
Chrysene	ND	0.00500		"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500		"	"	"	"	"	"	
Fluoranthene	ND	0.00500		"	"	"	"	"	"	
Fluorene	ND	0.00500		"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500		"	"	"	"	"	"	
Pyrene	ND	0.00500		"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500		"	"	"	"	"	"	

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 2-Methylnaphthalene-d10	0.0176	52.9 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0214	64.1 %		40-150		"	"	"	"	

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

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BHE0381	05/13/24	06/04/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-DL@3'**  
**2405166-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	3.33	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B
Barium	72.5	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	4.51	0.400	"	"	"	"	"	"
Lead	3.99	0.200	"	"	"	"	"	"
Nickel	5.97	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	19.9	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	23.6	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	10.9	0.0500	"	"	"	"	"	"	
Sodium	10.3	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.440	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

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

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-DL@3'**  
**2405166-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.1		%	1	BHE0383	05/13/24	05/14/24	Calculation	

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

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.229	0.0100	mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.30		pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-DL@4'**  
**2405166-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHE0402	05/13/24	05/14/24	EPA 8260B	
<b>Toluene</b>	<b>0.0057</b>	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.048</b>	0.010	"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>0.014</b>	0.0050	"	"	"	"	"	"	
<b>1,3,5-Trimethylbenzene</b>	<b>0.013</b>	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>1.3</b>	0.50	"	"	"	"	"	"	

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0293	73.3 %	50-150		"	"	"	"	
<i>Surrogate: Toluene-d8</i>	0.0420	105 %	50-150		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0416	104 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHE0404	05/13/24	05/15/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>	7.27	58.1 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-DL@4'**  
**2405166-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHE0371	05/13/24	05/13/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
<b>1-Methylnaphthalene</b>	<b>0.00607</b>	0.00500	"	"	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>0.0115</b>	0.00500	"	"	"	"	"	"	

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0212	63.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0145	43.5 %	40-150		"	"	"	"	

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

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHE0381	05/13/24	06/04/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 10:28**

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 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-DL@4'**  
**2405166-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.91	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B
Barium	75.2	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	7.47	0.400	"	"	"	"	"	"
Lead	6.11	0.200	"	"	"	"	"	"
Nickel	7.28	0.400	"	"	"	"	"	"
Silver	0.0327	0.0200	"	"	"	"	"	"
Zinc	32.3	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	82.4	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	8.16	0.0500	"	"	"	"	"	"	
Sodium	7.18	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.202	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

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

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**SEP02-DL@4'**  
**2405166-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	83.0			%	1	BHE0383	05/13/24	05/14/24	Calculation	

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

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.190	0.0100		mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 10:28**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.20			pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

Summit Scientific

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**DL01-01@3'**  
**2405166-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>0.0048</b>	0.0020		mg/kg	1	BHE0402	05/13/24	05/14/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>0.091</b>	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
<b>Naphthalene</b>	<b>0.0087</b>	0.0038		"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.96</b>	0.50		"	"	"	"	"	"	

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0290	72.4 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0419	105 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0411	103 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHE0404	05/13/24	05/14/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	6.80	54.4 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**DL01-01@3'**  
**2405166-06 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHE0371	05/13/24	05/13/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
<b>Benzo (a) pyrene</b>	<b>0.00522</b>	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	"	"	"	"	"	"	
<b>Indeno (1,2,3-cd) pyrene</b>	<b>0.00784</b>	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>0.00555</b>	0.00500	"	"	"	"	"	"	

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0217	65.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0242	72.7 %	40-150		"	"	"	"	

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

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHE0381	05/13/24	06/04/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 11:55**

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 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**DL01-01@3'**  
**2405166-06 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	3.03	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B	
Barium	61.0	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	5.57	0.400	"	"	"	"	"	"	
Lead	4.73	0.200	"	"	"	"	"	"	
Nickel	5.86	0.400	"	"	"	"	"	"	
Silver	0.0213	0.0200	"	"	"	"	"	"	
Zinc	23.3	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	52.8	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	8.56	0.0500	"	"	"	"	"	"	
Sodium	9.46	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.318	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

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

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**DL01-01@3'**  
**2405166-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	88.7			%	1	BHE0383	05/13/24	05/14/24	Calculation	

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

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.200	0.0100		mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 11:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.47			pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST01@0-6"**  
**2405166-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHE0402	05/13/24	05/14/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0306	76.5 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0400	99.9 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0400	100 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHE0404	05/13/24	05/14/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	7.61	60.9 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Tasman Geosciences  
6855 W. 119th Ave.  
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Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST01@0-6"**  
**2405166-07 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHE0371	05/13/24	05/13/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0242	72.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0271	81.4 %	40-150		"	"	"	"	

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

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHE0381	05/13/24	06/04/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 13:05**

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 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST01@0-6"**  
**2405166-07 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.56	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B
Barium	35.7	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	5.54	0.400	"	"	"	"	"	"
Lead	4.41	0.200	"	"	"	"	"	"
Nickel	5.83	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	19.7	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	73.8	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	17.8	0.0500	"	"	"	"	"	"	
Sodium	0.680	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0184	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

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

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST01@0-6"**  
**2405166-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.9		%	1	BHE0383	05/13/24	05/14/24	Calculation	

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

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0126	0.0100	mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.55		pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

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Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST02@0-6"**  
**2405166-08 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHE0402	05/13/24	05/14/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0309	77.2 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0364	90.9 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0396	99.1 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BHE0404	05/13/24	05/14/24	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	8.41	67.3 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST02@0-6"**  
**2405166-08 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHE0371	05/13/24	05/13/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0254	76.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0275	82.6 %	40-150		"	"	"	"	

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

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHE0381	05/13/24	06/04/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Tasman Geosciences  
6855 W. 119th Ave.  
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Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST02@0-6"**  
**2405166-08 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	2.28	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B
Barium	29.2	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	4.55	0.400	"	"	"	"	"	"
Lead	3.89	0.200	"	"	"	"	"	"
Nickel	4.64	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	17.4	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	83.1	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	24.6	0.0500	"	"	"	"	"	"	
Sodium	0.795	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0197	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

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

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Broomfield CO, 80020

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Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST02@0-6"**  
**2405166-08 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	93.8			%	1	BHE0383	05/13/24	05/14/24	Calculation	

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

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.0307	0.0100		mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 13:03**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.22			pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST03@0-6"**  
**2405166-09 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BHE0402	05/13/24	05/14/24	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0320	80.0 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0394	98.6 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0390	97.5 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BHE0404	05/13/24	05/14/24	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	7.52	60.1 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST03@0-6"**  
**2405166-09 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHE0371	05/13/24	05/13/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0258	77.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0287	86.2 %	40-150		"	"	"	"	

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

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHE0381	05/13/24	06/04/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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6855 W. 119th Ave.  
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Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST03@0-6"**  
**2405166-09 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.30	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B	
Barium	42.6	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	4.83	0.400	"	"	"	"	"	"	
Lead	3.67	0.200	"	"	"	"	"	"	
Nickel	4.85	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	20.0	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	119	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	10.5	0.0500	"	"	"	"	"	"	
Sodium	6.13	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.145	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

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

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6855 W. 119th Ave.  
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Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST03@0-6"**  
**2405166-09 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	92.6			%	1	BHE0383	05/13/24	05/14/24	Calculation	

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

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.114	0.0100		mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 13:01**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.72			pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

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6855 W. 119th Ave.  
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Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST04@0-6"**  
**2405166-10 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BHE0402	05/13/24	05/14/24	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.023</b>	0.010	"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>0.046</b>	0.0050	"	"	"	"	"	"	
<b>1,3,5-Trimethylbenzene</b>	<b>0.019</b>	0.0050	"	"	"	"	"	"	
<b>Naphthalene</b>	<b>0.018</b>	0.0038	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>2.9</b>	0.50	"	"	"	"	"	"	

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0314	78.6 %	50-150		"	"	"	"	
<i>Surrogate: Toluene-d8</i>	0.0442	110 %	50-150		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0383	95.7 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>56</b>	50	mg/kg	1	BHE0404	05/13/24	05/15/24	EPA 8015M	
<b>C28-C36 (ORO)</b>	ND	50	"	"	"	"	"	"	

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>	6.58	52.6 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST04@0-6"**  
**2405166-10 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BHE0371	05/13/24	05/13/24	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
<b>Fluorene</b>	<b>0.0145</b>	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
<b>1-Methylnaphthalene</b>	<b>0.0439</b>	0.00500	"	"	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>0.0961</b>	0.00500	"	"	"	"	"	"	

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0216	64.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0270	81.0 %	40-150		"	"	"	"	

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

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BHE0381	05/13/24	06/04/24	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 12:59**

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 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST04@0-6"**  
**2405166-10 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	3.78	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B
Barium	39.7	0.400	"	"	"	"	"	"
Cadmium	0.205	0.200	"	"	"	"	"	"
Copper	5.11	0.400	"	"	"	"	"	"
Lead	5.41	0.200	"	"	"	"	"	"
Nickel	5.95	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	25.5	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	16.7	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	5.20	0.0500	"	"	"	"	"	"	
Sodium	5.82	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.319	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

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

Summit Scientific

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Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**AST04@0-6"**  
**2405166-10 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	95.4			%	1	BHE0383	05/13/24	05/14/24	Calculation	

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

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.122	0.0100		mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 12:59**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.64			pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

Summit Scientific

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Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**BKG01@0-6"**  
**2405166-11 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 13:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	<b>3.84</b>	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B	
Barium	<b>57.7</b>	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	<b>6.18</b>	0.400	"	"	"	"	"	"	
Lead	<b>5.96</b>	0.200	"	"	"	"	"	"	
Nickel	<b>6.23</b>	0.400	"	"	"	"	"	"	
Silver	<b>0.0244</b>	0.0200	"	"	"	"	"	"	
Zinc	<b>34.9</b>	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 13:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 13:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	<b>75.6</b>	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	<b>10.1</b>	0.0500	"	"	"	"	"	"	
Sodium	<b>11.9</b>	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 13:25**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	<b>0.341</b>	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**BKG01@0-6''**  
**2405166-11 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.9		%	1	BHE0383	05/13/24	05/14/24	Calculation	

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

Date Sampled: **05/10/24 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.376	0.0100	mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.95		pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

Summit Scientific

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Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**BKG01@3'**  
**2405166-12 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 13:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	3.59	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B	
Barium	76.4	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	6.78	0.400	"	"	"	"	"	"	
Lead	5.93	0.200	"	"	"	"	"	"	
Nickel	8.03	0.400	"	"	"	"	"	"	
Silver	0.0300	0.0200	"	"	"	"	"	"	
Zinc	30.1	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 13:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 13:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	86.5	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	33.0	0.0500	"	"	"	"	"	"	
Sodium	57.6	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 13:31**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.34	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

Summit Scientific

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**BKG01@3'**  
**2405166-12 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 13:31**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	86.7			%	1	BHE0383	05/13/24	05/14/24	Calculation	

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

Date Sampled: **05/10/24 13:31**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.959	0.0100		mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 13:31**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.89			pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**BKG01@4'**  
**2405166-13 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **05/10/24 13:33**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	3.88	0.200	mg/kg dry	1	BHE0390	05/13/24	05/18/24	EPA 6020B	
Barium	90.9	0.400	"	"	"	"	"	"	
Cadmium	0.229	0.200	"	"	"	"	"	"	
Copper	8.68	0.400	"	"	"	"	"	"	
Lead	7.17	0.200	"	"	"	"	"	"	
Nickel	10.0	0.400	"	"	"	"	"	"	
Silver	0.0371	0.0200	"	"	"	"	"	"	
Zinc	41.2	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **05/10/24 13:33**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BHE0372	05/13/24	05/13/24	EPA 7196A	

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

Date Sampled: **05/10/24 13:33**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Calcium	75.9	0.0500	mg/L dry	1	BHE0384	05/13/24	06/08/24	EPA 6020B	
Magnesium	50.0	0.0500	"	"	"	"	"	"	
Sodium	58.9	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **05/10/24 13:33**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Sodium Adsorption Ratio	1.29	0.00100	units	1	BHF0239	06/10/24	06/10/24	Calculation	

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

Summit Scientific

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Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**BKG01@4'**  
**2405166-13 (Soil)**

**Summit Scientific**

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

Date Sampled: **05/10/24 13:33**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	80.7			%	1	BHE0383	05/13/24	05/14/24	Calculation	

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

Date Sampled: **05/10/24 13:33**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.961	0.0100		mmhos/cm	1	BHE0397	05/13/24	05/14/24	EPA 120.1	

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

Date Sampled: **05/10/24 13:33**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.03			pH Units	1	BHE0396	05/13/24	05/14/24	EPA 9045D	

Summit Scientific

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Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

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

#### Summit Scientific

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

#### Batch BHE0402 - EPA 5030 Soil MS

##### Blank (BHE0402-BLK1)

Prepared & Analyzed: 05/13/24

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0333</i>		<i>"</i>	<i>0.0400</i>		<i>83.3</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>97.1</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.7</i>	<i>50-150</i>			

##### LCS (BHE0402-BS1)

Prepared & Analyzed: 05/13/24

Benzene	0.0837	0.0020	mg/kg	0.100		83.7	70-130			
Toluene	0.102	0.0050	"	0.100		102	70-130			
Ethylbenzene	0.111	0.0050	"	0.100		111	70-130			
m,p-Xylene	0.217	0.010	"	0.200		108	70-130			
o-Xylene	0.104	0.0050	"	0.100		104	70-130			
1,2,4-Trimethylbenzene	0.0965	0.0050	"	0.100		96.5	70-130			
1,3,5-Trimethylbenzene	0.101	0.0050	"	0.100		101	70-130			
Naphthalene	0.0831	0.0038	"	0.100		83.1	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0290</i>		<i>"</i>	<i>0.0400</i>		<i>72.6</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0407</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0393</i>		<i>"</i>	<i>0.0400</i>		<i>98.2</i>	<i>50-150</i>			

##### Matrix Spike (BHE0402-MS1)

Source: 2405162-01

Prepared & Analyzed: 05/13/24

Benzene	0.0814	0.0020	mg/kg	0.100	ND	81.4	70-130			
Toluene	0.0955	0.0050	"	0.100	ND	95.5	70-130			
Ethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130			
m,p-Xylene	0.200	0.010	"	0.200	ND	99.9	70-130			
o-Xylene	0.0979	0.0050	"	0.100	ND	97.9	70-130			
1,2,4-Trimethylbenzene	0.0886	0.0050	"	0.100	ND	88.6	70-130			
1,3,5-Trimethylbenzene	0.0917	0.0050	"	0.100	ND	91.7	70-130			
Naphthalene	0.0802	0.0038	"	0.100	ND	80.2	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0304</i>		<i>"</i>	<i>0.0400</i>		<i>76.1</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0396</i>		<i>"</i>	<i>0.0400</i>		<i>99.0</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0396</i>		<i>"</i>	<i>0.0400</i>		<i>99.1</i>	<i>50-150</i>			

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

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

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

**Batch BHE0402 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (BHE0402-MSD1)</b>	<b>Source: 2405162-01</b>			<b>Prepared &amp; Analyzed: 05/13/24</b>						
Benzene	0.0888	0.0020	mg/kg	0.100	ND	88.8	70-130	8.71	30	
Toluene	0.104	0.0050	"	0.100	ND	104	70-130	8.31	30	
Ethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130	5.93	30	
m,p-Xylene	0.210	0.010	"	0.200	ND	105	70-130	5.13	30	
o-Xylene	0.102	0.0050	"	0.100	ND	102	70-130	3.67	30	
1,2,4-Trimethylbenzene	0.0907	0.0050	"	0.100	ND	90.7	70-130	2.38	30	
1,3,5-Trimethylbenzene	0.0944	0.0050	"	0.100	ND	94.4	70-130	2.90	30	
Naphthalene	0.0809	0.0038	"	0.100	ND	80.9	70-130	0.856	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0311</i>		<i>"</i>	<i>0.0400</i>		<i>77.8</i>	<i>50-150</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.2</i>	<i>50-150</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0385</i>		<i>"</i>	<i>0.0400</i>		<i>96.2</i>	<i>50-150</i>			

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

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

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

**Batch BHE0404 - EPA 3550A**

**Blank (BHE0404-BLK1)**

Prepared: 05/13/24 Analyzed: 05/14/24

C10-C28 (DRO)	ND	50	mg/kg								
C28-C36 (ORO)	ND	50	"								
Surrogate: <i>o</i> -Terphenyl	14.0		"	12.5	112	30-150					

**LCS (BHE0404-BS1)**

Prepared: 05/13/24 Analyzed: 05/14/24

C10-C28 (DRO)	418	50	mg/kg	500	83.7	70-130					
Surrogate: <i>o</i> -Terphenyl	10.5		"	12.5	83.8	30-150					

**Matrix Spike (BHE0404-MS1)**

Source: 2405162-01

Prepared: 05/13/24 Analyzed: 05/14/24

C10-C28 (DRO)	401	50	mg/kg	500	39.2	72.3	70-130				
Surrogate: <i>o</i> -Terphenyl	6.42		"	12.5	51.4	30-150					

**Matrix Spike Dup (BHE0404-MSD1)**

Source: 2405162-01

Prepared: 05/13/24 Analyzed: 05/14/24

C10-C28 (DRO)	395	50	mg/kg	500	39.2	71.1	70-130	1.49	20		
Surrogate: <i>o</i> -Terphenyl	6.60		"	12.5	52.8	30-150					

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**PAH by EPA Method 8270D SIM - Quality Control**  
**Summit Scientific**

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

**Batch BHE0371 - EPA 5030 Soil MS**

**Blank (BHE0371-BLK1)**

Prepared & Analyzed: 05/13/24

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0340</i>		"	<i>0.0333</i>	<i>102</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0361</i>		"	<i>0.0333</i>	<i>108</i>	<i>40-150</i>				

**LCS (BHE0371-BS1)**

Prepared & Analyzed: 05/13/24

Acenaphthene	0.0342	0.00500	mg/kg	0.0333	102	31-137				
Anthracene	0.0326	0.00500	"	0.0333	97.7	30-120				
Benzo (a) anthracene	0.0309	0.00500	"	0.0333	92.8	30-120				
Benzo (a) pyrene	0.0284	0.00500	"	0.0333	85.3	30-120				
Benzo (b) fluoranthene	0.0293	0.00500	"	0.0333	88.0	30-120				
Benzo (k) fluoranthene	0.0343	0.00500	"	0.0333	103	30-120				
Chrysene	0.0361	0.00500	"	0.0333	108	30-120				
Dibenz (a,h) anthracene	0.0192	0.00500	"	0.0333	57.5	30-120				
Fluoranthene	0.0333	0.00500	"	0.0333	99.8	30-120				
Fluorene	0.0339	0.00500	"	0.0333	102	30-120				
Indeno (1,2,3-cd) pyrene	0.0143	0.00500	"	0.0333	42.8	30-120				
Pyrene	0.0328	0.00500	"	0.0333	98.3	35-142				
1-Methylnaphthalene	0.0302	0.00500	"	0.0333	90.5	35-142				
2-Methylnaphthalene	0.0325	0.00500	"	0.0333	97.6	35-142				
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0334</i>		"	<i>0.0333</i>	<i>100</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0369</i>		"	<i>0.0333</i>	<i>111</i>	<i>40-150</i>				

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

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

**Summit Scientific**

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

**Batch BHE0371 - EPA 5030 Soil MS**

<b>Matrix Spike (BHE0371-MS1)</b>	<b>Source: 2405166-01</b>			<b>Prepared &amp; Analyzed: 05/13/24</b>								
Acenaphthene	0.0172	0.00500	mg/kg	0.0333	ND	51.5	31-137					
Anthracene	0.0176	0.00500	"	0.0333	ND	52.9	30-120					
Benzo (a) anthracene	0.0190	0.00500	"	0.0333	ND	57.1	30-120					
Benzo (a) pyrene	0.0178	0.00500	"	0.0333	ND	53.5	30-120					
Benzo (b) fluoranthene	0.0194	0.00500	"	0.0333	ND	58.1	30-120					
Benzo (k) fluoranthene	0.0205	0.00500	"	0.0333	ND	61.6	30-120					
Chrysene	0.0195	0.00500	"	0.0333	ND	58.5	30-120					
Dibenz (a,h) anthracene	0.0138	0.00500	"	0.0333	ND	41.4	30-120					
Fluoranthene	0.0181	0.00500	"	0.0333	ND	54.4	30-120					
Fluorene	0.0177	0.00500	"	0.0333	ND	53.1	30-120					
Indeno (1,2,3-cd) pyrene	0.0142	0.00500	"	0.0333	ND	42.7	30-120					
Pyrene	0.0186	0.00500	"	0.0333	ND	55.7	35-142					
1-Methylnaphthalene	0.0168	0.00500	"	0.0333	ND	50.4	15-130					
2-Methylnaphthalene	0.0172	0.00500	"	0.0333	ND	51.7	15-130					
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0174</i>		<i>"</i>	<i>0.0333</i>		<i>52.1</i>	<i>40-150</i>					
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0198</i>		<i>"</i>	<i>0.0333</i>		<i>59.4</i>	<i>40-150</i>					

<b>Matrix Spike Dup (BHE0371-MSD1)</b>	<b>Source: 2405166-01</b>			<b>Prepared &amp; Analyzed: 05/13/24</b>								
Acenaphthene	0.0138	0.00500	mg/kg	0.0333	ND	41.5	31-137	21.6	30			
Anthracene	0.0141	0.00500	"	0.0333	ND	42.3	30-120	22.2	30			
Benzo (a) anthracene	0.0143	0.00500	"	0.0333	ND	43.0	30-120	28.1	30			
Benzo (a) pyrene	0.0141	0.00500	"	0.0333	ND	42.4	30-120	23.2	30			
Benzo (b) fluoranthene	0.0136	0.00500	"	0.0333	ND	40.8	30-120	34.9	30			QR-02
Benzo (k) fluoranthene	0.0147	0.00500	"	0.0333	ND	44.1	30-120	33.0	30			QR-02
Chrysene	0.0141	0.00500	"	0.0333	ND	42.3	30-120	32.2	30			QR-02
Dibenz (a,h) anthracene	0.0142	0.00500	"	0.0333	ND	42.6	30-120	2.81	30			
Fluoranthene	0.0135	0.00500	"	0.0333	ND	40.5	30-120	29.4	30			
Fluorene	0.0142	0.00500	"	0.0333	ND	42.6	30-120	21.9	30			
Indeno (1,2,3-cd) pyrene	0.0138	0.00500	"	0.0333	ND	41.3	30-120	3.33	30			
Pyrene	0.0138	0.00500	"	0.0333	ND	41.3	35-142	29.8	30			
1-Methylnaphthalene	0.0206	0.00500	"	0.0333	ND	62.0	15-130	20.5	50			
2-Methylnaphthalene	0.0211	0.00500	"	0.0333	ND	63.2	15-130	20.2	50			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0220</i>		<i>"</i>	<i>0.0333</i>		<i>66.0</i>	<i>40-150</i>					
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0141</i>		<i>"</i>	<i>0.0333</i>		<i>42.3</i>	<i>40-150</i>					

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

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

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

**Batch BHE0381 - EPA 3050B**

**Blank (BHE0381-BLK1)**

Prepared: 05/13/24 Analyzed: 06/04/24

Boron ND 2.00 mg/L

**LCS (BHE0381-BS1)**

Prepared: 05/13/24 Analyzed: 06/04/24

Boron 5.19 2.00 mg/L 5.00 104 80-120

**Duplicate (BHE0381-DUP1)**

**Source: 2405163-01**

Prepared: 05/13/24 Analyzed: 06/04/24

Boron 0.187 2.00 mg/L 0.181 3.19 20

**Matrix Spike (BHE0381-MS1)**

**Source: 2405163-01**

Prepared: 05/13/24 Analyzed: 06/04/24

Boron 5.40 2.00 mg/L 5.02 0.181 104 75-125

**Matrix Spike Dup (BHE0381-MSD1)**

**Source: 2405163-01**

Prepared: 05/13/24 Analyzed: 06/04/24

Boron 5.19 2.00 mg/L 5.02 0.181 99.8 75-125 4.05 25

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

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

**Batch BHE0390 - EPA 3050B**

**Blank (BHE0390-BLK1)**

Prepared: 05/13/24 Analyzed: 05/18/24

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

**LCS (BHE0390-BS1)**

Prepared: 05/13/24 Analyzed: 05/18/24

Arsenic	40.1	0.200	mg/kg wet	40.0	100	80-120
Barium	40.3	0.400	"	40.0	101	80-120
Cadmium	1.93	0.200	"	2.00	96.6	80-120
Copper	39.6	0.400	"	40.0	99.0	80-120
Lead	19.6	0.200	"	20.0	97.9	80-120
Nickel	39.1	0.400	"	40.0	97.7	80-120
Silver	1.96	0.0200	"	2.00	98.1	80-120
Zinc	39.6	0.400	"	40.0	98.9	80-120
Selenium	4.07	0.260	"	4.00	102	80-120

**Duplicate (BHE0390-DUP1)**

Source: 2405166-01

Prepared: 05/13/24 Analyzed: 05/18/24

Arsenic	2.87	0.200	mg/kg dry	2.47	15.3	20	
Barium	116	0.400	"	106	8.49	20	
Cadmium	0.336	0.200	"	0.264	23.9	20	QR-04
Copper	14.0	0.400	"	18.5	27.9	20	QR-04
Lead	10.3	0.200	"	10.0	2.75	20	
Nickel	10.4	0.400	"	8.99	14.5	20	
Silver	0.0697	0.0200	"	0.0643	8.05	20	
Zinc	60.5	0.400	"	57.3	5.32	20	
Selenium	ND	0.260	"	ND		20	

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

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

**Summit Scientific**

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

**Batch BHE0390 - EPA 3050B**

**Matrix Spike (BHE0390-MS1)**

Source: 2405166-01

Prepared: 05/13/24 Analyzed: 05/18/24

Arsenic	43.3	0.200	mg/kg dry	44.1	2.47	92.6	75-125				
Barium	140	0.400	"	44.1	106	77.5	75-125				
Cadmium	2.38	0.200	"	2.20	0.264	95.9	75-125				
Copper	51.5	0.400	"	44.1	18.5	74.7	75-125				QM-07
Lead	29.9	0.200	"	22.0	10.0	90.0	75-125				
Nickel	49.1	0.400	"	44.1	8.99	90.9	75-125				
Silver	2.16	0.0200	"	2.20	0.0643	94.8	75-125				
Zinc	90.6	0.400	"	44.1	57.3	75.4	75-125				
Selenium	3.19	0.260	"	4.41	ND	72.3	75-125				QM-07

**Matrix Spike Dup (BHE0390-MSD1)**

Source: 2405166-01

Prepared: 05/13/24 Analyzed: 05/18/24

Arsenic	46.3	0.200	mg/kg dry	46.9	2.47	93.4	75-125	6.61	25		
Barium	147	0.400	"	46.9	106	86.6	75-125	4.49	25		
Cadmium	2.52	0.200	"	2.35	0.264	96.3	75-125	5.87	25		
Copper	55.2	0.400	"	46.9	18.5	78.0	75-125	6.86	25		
Lead	31.1	0.200	"	23.5	10.0	90.0	75-125	4.19	25		
Nickel	52.3	0.400	"	46.9	8.99	92.3	75-125	6.40	25		
Silver	2.26	0.0200	"	2.35	0.0643	93.8	75-125	4.93	25		
Zinc	97.0	0.400	"	46.9	57.3	84.5	75-125	6.83	25		
Selenium	3.40	0.260	"	4.69	ND	72.5	75-125	6.44	25		QM-07

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

Project: Noble - Wiedeman 25-5 FAC  
Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

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

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

**Batch BHE0372 - 3060A Mod**

**Blank (BHE0372-BLK1)**

Prepared & Analyzed: 05/13/24

Chromium, Hexavalent      ND      0.30    mg/kg wet

**LCS (BHE0372-BS1)**

Prepared & Analyzed: 05/13/24

Chromium, Hexavalent      23.7      0.30    mg/kg wet      25.0      94.8      80-120

**Duplicate (BHE0372-DUP1)**

**Source: 2405159-01**

Prepared & Analyzed: 05/13/24

Chromium, Hexavalent      ND      0.30    mg/kg dry      ND      20

**Matrix Spike (BHE0372-MS1)**

**Source: 2405159-01**

Prepared & Analyzed: 05/13/24

Chromium, Hexavalent      30.2      0.30    mg/kg dry      30.6      ND      98.6      75-125

**Matrix Spike Dup (BHE0372-MSD1)**

**Source: 2405159-01**

Prepared & Analyzed: 05/13/24

Chromium, Hexavalent      30.4      0.30    mg/kg dry      30.6      ND      99.2      75-125      0.607      20

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

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

**Summit Scientific**

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

**Batch BHE0384 - General Preparation**

**Blank (BHE0384-BLK1)**

Prepared: 05/13/24 Analyzed: 06/08/24

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

**LCS (BHE0384-BS1)**

Prepared: 05/13/24 Analyzed: 06/08/24

Calcium	5.72	0.0500	mg/L wet	5.00	114	70-130				
Magnesium	5.35	0.0500	"	5.00	107	70-130				
Sodium	5.77	0.0500	"	5.00	115	70-130				

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

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

**Summit Scientific**

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

**Batch BHE0383 - General Preparation**

Duplicate (BHE0383-DUP1)	Source: 2405062-01		Prepared: 05/13/24 Analyzed: 05/14/24	
% Solids	87.5	%	87.6	0.133 20

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

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

**Summit Scientific**

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

**Batch BHE0397 - General Preparation**

**Blank (BHE0397-BLK1)**

Prepared: 05/13/24 Analyzed: 05/14/24

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BHE0397-BS1)**

Prepared: 05/13/24 Analyzed: 05/14/24

Specific Conductance (EC) 0.156 0.0100 mmhos/cm 0.150 104 95-105

**Duplicate (BHE0397-DUP1)**

Source: 2405166-01

Prepared: 05/13/24 Analyzed: 05/14/24

Specific Conductance (EC) 0.143 0.0100 mmhos/cm 0.145 1.94 20

Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

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

**Summit Scientific**

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

**Batch BHE0396 - General Preparation**

**LCS (BHE0396-BS1)**

Prepared: 05/13/24 Analyzed: 05/14/24

pH	9.19	pH Units	9.18	100	95-105
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**Duplicate (BHE0396-DUP1)**

Source: 2405166-01

Prepared: 05/13/24 Analyzed: 05/14/24

pH	8.46	pH Units	8.51	0.589	20
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Summit Scientific

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

Project: Noble - Wiedeman 25-5 FAC

Project Number: UWRWE-A3538-ABN  
Project Manager: Jacob Whritenour

**Reported:**  
06/17/24 08:33

### Notes and Definitions

- QR-04 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- 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