

# **FREMONT ENVIRONMENTAL INC.**

October 20, 2023

Mr. Daniel Peterson  
Noble Energy Inc.  
2115 117<sup>th</sup> Avenue  
Greeley, CO 80634

Subject:           **Facility Closure Data Submittal**  
HSR Kirkham Tudor T4N-R65W-S31 L01  
NWSW Sec. 31, T4N, R65W  
Weld County, Colorado  
Fremont Project No. C023-267  
Facility # 327866, Remediation #30378

Dear Mr. Peterson:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted Facility Closure activities for the Noble Energy Inc. (Noble) HSR Kirkham Tudor T4N-R65W-S31 L01. Impacted soil was not encountered during abandonment activities. Details of the HSR Kirkham Tudor T4N-R65W-S31 L01 facility closure activities are documented in the attached Closure Report. Groundwater was not encountered during flowline abandonment activities.

Please contact me at (303) 956-8714 if you require any additional information. Fremont appreciates the opportunity to provide this service.

Sincerely,

**FREMONT ENVIRONMENTAL INC.**



Paul V. Henehan, P.E.  
Senior Consultant

Attachments:

- Facility Closure Checklist
- Tables
- Figures
- Photos
- Laboratory Reports

## Tank Battery Closure Checklist

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

Additional attachments (optional):		Pit Closure		Wellhead Closure		Flowline Closure	<b>X</b>	Partially Buried Vault Closure	
Site Name & COGCC Facility Number: HSR Kirkham Tudor T4N-R65W-S31 L01 Facility ID: 327866		Date: <b>10/20/2023</b>					Remediation Project #: <b>30378</b>		
Associated Wells: HSR-Kirkham 12-31A HSR-Tudor 11-31A		Age of Site: <b>1991</b>					Number of Photos Attached: <b>11 Photos</b>		
Location: (GPS coordinates of southeaster berm) <b>40.266193, -104.710852</b>							Estimated Facility Size (acres): <b>~1 Acre</b>		

General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)  
**Good housekeeping. General condition for all the on-site equipment looked fine. Waste management well maintained.**

USCS Soil Type: <b>SW</b>	Estimated Depth to Groundwater: <b>N/A</b>
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Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  
**None observed**

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  
**None observed**

### Tanks

Tank Contents	Oil							
Size (barrels)	300 BBLs							
Age	1991							
Construction Material	Steel							
Tank type (AST/DRV, etc.)	AST							
Visual Integrity of Tank	No Damage							
Condition of tank footprint	No Impacts Noted							
PID Readings	High @ 2.4ppm							
Soil impacts present at valves or hatches?	No Impacts Noted							
PID Readings	N/A							
Sample taken? Location/ Sample ID#	40.2660428, -104.7107449 AST01@6.0'							
Photo Number(s)	Photo 1A							

Other observations regarding tanks:  
 Tank removed prior to sampling event. An exceedance in pH and Arsenic was discovered at the above ground storage tank (AST01@6.0'). Refer to the inorganic soil chemistry table (Table 3) and metals in soil chemistry table (Table 4) for reference. Additionally, exceedances and pH and Arsenic were found in local background samples as well. Thus, these exceedance should be contributed to native soil conditions.

### Separators

Separator size	UNK	UNK						
Vertical or Horizontal	Horizontal	Horizontal						
Age	1991	1991						
Soil impacts present at valves or hatches?	No Impacts Noted	No Impacts Noted						
PID Readings	High @ 0.0ppm	High @ 0.0ppm						
Sample taken? Location/ Sample ID#	40.2663231, -104.7108927 SEP01@3.5'	40.2662922, -104.7108773 SEP02@3.5'						
Photo Number(s)	Photo 2A	Photo 3A						

Other observations regarding separators  
 Separators in good condition and no damage. An exceedance in Arsenic was discovered at both separator sample locations (SEP01@3.5' & SEP02@3.5'). Refer to the metals in soil chemistry table (Table 4) for reference. Additionally, exceedances in Arsenic were found in all local background samples as well. Thus, these exceedance should be contributed to native soil conditions.

### Third Party Equipment

Type	Meter Shed	Meter Shed						
Age	1991	1991						

Third Party Removal Date	Unknown	Unknown							
Sample taken? Location/Depth	MET01@6.0"	MET02@6.0"							
PID Readings	High @ 0.0ppm	High @ 0.0ppm							
Photo Number(s)	Photo 5A	Photo 6A							

### Other Facility Equipment

Equipment type	Combustion Unit	Combustion Unit		
Equipment Condition	No Damage	No Damage		
Age	1991	1991		
Soil impacts	No Impacts Noted	No Impacts Noted		
PID Readings	High @ 0.0ppm	High @ 0.0ppm		
Sample taken? Location/Depth	ECD01@6.0"	ECD02@6.0"		
Photo Number(s)	Photo 7A	Photo 8A		

Other observations regarding other facility or third party equipment:

Combustion Units removed prior to sampling event

### Summary

Was impacted soil identified?	<b>No</b>	Yes - less than 10 cubic yards	Yes - more than 10 cubic yards
Total number of samples field screened:	4 Samples		Total number of samples collected: 22 Samples
Highest PID Reading:	High at 2.4ppm (AST01@6.0")		Total number of samples submitted to lab for analysis: 18 Samples
If more than 10 cubic yards of impacted soil were observed:			
Vertical extent:	N/A		Estimated spill volume: N/A
Lateral extent:	N/A		Volume of soil removed: N/A
Is additional investigation required? N/A			
Was groundwater encountered during the investigation?	<b>No</b>	Yes - not impacted or in contact with impacted soils	Yes - groundwater impacted and/or in contact with impacted soils
Measured depth to groundwater:	N/A		Was remedial groundwater removal conducted? Yes No
Date Groundwater was encountered:	N/A		Commencement date of removal: N/A
Sheen on groundwater?	Yes	No	Volume of groundwater removed prior to sampling: N/A
Free product observed?	Yes	No	Volume of groundwater removed post sampling: N/A
Total number of samples collected:	N/A		Total Volume of groundwater removed: N/A
Total number of samples submitted to lab for analysis:	N/A		

## Buried or Partially Buried Vessel Closure Checklist

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

Additional attachments (optional):		Pit Closure		Wellhead Closure		Flowline Closure	X	Tank Battery Closure
Site Name & COGCC Facility Number: HSR Kirkham Tudor T4N-R65W-S31 L01 Facility ID: 327866		Date: <b>10/20/2023</b>			Remediation Project #: <b>30378</b>			
Associated Wells: HSR-Kirkham 12-31A HSR-Tudor 11-31A		Age of Site: <b>1991</b>			Number of Photos Attached: <b>5 Photos</b>			
Location: (GPS coordinates of vault or southeastern tank berm for multiple)							Estimated Facility Size (acres): ~1 acre	

**40.2660845, -104.7107764**

General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)  
**Good housekeeping. General condition for all the on-site equipment looked fine. Waste management well maintained.**

USCS Soil Type: <b>SW</b>	Estimated Depth to Groundwater: <b>N/A</b>
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Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  
**None observed**

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  
**None observed**

### Buried or Partially Buried Vessels

Tank Contents	Produced Water							
Size (barrels)	<100 BBLs							
Age	1991							
Construction Material	PBV Concrete							
Visual Integrity of Tank	No Damage							
Condition of tank	No Impacts Noted							
PID Readings	High @ 0.2ppm							
Condition of Duplex Line	No Damage							
PID Readings	N/A							
Sample taken? Location/Sample ID#	PWVB01 @ 6.0' PWVE01 @ 5.0'							
Photo Number(s)	Photo 4A-4E							

**Other observations regarding partially buried vessels:** Dumlplines were not trenched. The dunpline tie-in for the separators was at sample location SEP01@3.5' and the dunpline tie-in point to the tanks was at the east sidewall of the produced water vault excavation. An exceedance in Arsenic was discovered at the floor and eastern sidewall of the PWV excavation, and an exceedance in barium was discovered at the eastern sidewall of the PWV excavation. Refer to the metals in soil chemistry table (Table 4) for reference. Additionally, exceedances in Arsenic were found in local background samples as well. Thus, these exceedance should be contributed to native soil conditions.

### Summary

Was impacted soil identified?		<b>No</b>	Yes - less than 10 cubic yards	Yes - more than 10 cubic yards
Total number of samples field screened: <b>3 samples</b>		Total number of samples collected: <b>5 samples</b>		
Highest PID Reading: <b>High @ 0.2ppm (PWVB01 @ 6.0')</b>		Total number of samples submitted to lab for analysis: <b>2 samples</b>		
If more than 10 cubic yards of impacted soil were observed:				
Vertical extent: <b>N/A</b>		Estimated spill volume: <b>N/A</b>		
Lateral extent: <b>N/A</b>		Volume of soil removed: <b>N/A</b>		
Is additional investigation required? <b>N/A</b>				
Was groundwater encountered during the investigation?		<b>No</b>	Yes - not impacted or in contact with impacted soils	Yes - groundwater impacted and/or in contact with impacted soils
Measured depth to groundwater: <b>N/A</b>		Was remedial groundwater removal conducted?    Yes    No		
Date Groundwater was encountered: <b>N/A</b>		Commencement date of removal: <b>N/A</b>		
Sheen on groundwater?                      Yes                      No		Volume of groundwater removed prior to sampling: <b>N/A</b>		
Free product observed?                      Yes                      No		Volume of groundwater removed post sampling: <b>N/A</b>		
Total number of samples collected: <b>N/A</b>		Total Volume of groundwater removed: <b>N/A</b>		
Total number of samples submitted to lab for analysis: <b>N/A</b>				

**TABLE 1**  
**SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA**  
**NOBLE ENERGY INC.**  
**HSR KIRKHAM TUDOR T4N-R65W-S31 L01, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C023-267**

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 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**		
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500**		
AST01@6.0"	10/20/2023	0.5 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SEP01@3.5'	10/20/2023	3.5 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
SEP02@3.5'	10/20/2023	3.5 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
PWVB01@6.0'	10/20/2023	6.0 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
PWVE01@5.0'	10/20/2023	5.0 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50

Bold faced values exceed the COGCC Table 915-1 concentrations

Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

\* Indicates laboratory minimum detection limit in excess of SSL

\*\* Summation of GRO+DRO+ORO must be less than 500 mg/kg

TABLE 2  
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA  
NOBLE ENERGY INC.  
HSR KIRKHAM TUDOR T4N-R65W-S31 L01, WELD COUNTY, COLORADO  
FREMONT PROJECT NO. C023-267

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@6.0"	10/20/2023	0.5 Ft	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP01@3.5'	10/20/2023	3.5 Ft	<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@3.5'	10/20/2023	3.5 Ft	<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
PWVB01@6.0'	10/20/2023	6.0 Ft	<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
PWVE01@5.0'	10/20/2023	5.0 Ft	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00546	<0.00500	<0.00500	0.00606	<0.00500	<0.00500

Bold faced values exceed the COGCC Table 915-1 concentrations

Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

\* Indicates laboratory minimum detection limit in excess of SSL

**TABLE 3**  
**SUMMARY OF SOIL SUITABILITY FOR RECLAMATION**  
**NOBLE ENERGY INC.**  
**HSR KIRKHAM TUDOR T4N-R65W-S31 L01, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C023-267**

Sample ID	Sample Date	Depth (ft)	pH	EC (mmhos/cm)	SAR	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
AST01@6.0"	10/20/2023	0.5 Ft	5.11	0.203	0.541	<2.00
SEP01@3.5'	10/20/2023	3.5 Ft	6.12	0.153	3.64	<2.00
SEP02@3.5'	10/20/2023	3.5 Ft	7.00	0.0848	0.134	<2.00
PWVB01@6.0'	10/20/2023	6.0 Ft	8.05	1.14	3.83	<2.00
PWVE01@5.0'	10/20/2023	5.0 Ft	8.29	0.396	0.768	<2.00
BKG01@6.0"	10/20/2023	0.5 Ft	5.68	0.0402	0.0441	<2.00
BKG01@4.0'	10/20/2023	4.0 Ft	6.05	<0.0100	0.0220	<2.00
BKG01@6.0'	10/20/2023	6.0 Ft	6.03	0.0115	0.0211	<2.00
BKG02@6.0"	10/20/2023	0.5 Ft	6.03	0.0221	0.0465	<2.00
BKG02@4.0'	10/20/2023	4.0 Ft	6.15	0.0113	0.0364	<2.00
BKG02@6.0'	10/20/2023	6.0 Ft	6.23	0.0101	0.0264	<2.00
BKG03@6.0"	10/20/2023	0.5 Ft	6.19	0.0443	0.0481	<2.00
BKG03@4.0'	10/20/2023	4.0 Ft	6.04	<0.0100	0.0346	<2.00
BKG03@6.0'	10/20/2023	6.0 Ft	6.19	0.0107	0.0294	<2.00
BKG04@6.0"	10/20/2023	0.5 Ft	5.81	0.0260	0.0381	<2.00
BKG04@4.0'	10/20/2023	4.0 Ft	5.79	<0.0100	0.0245	<2.00
BKG04@6.0'	10/20/2023	6.0 Ft	6.22	<0.0100	0.0243	<2.00
BKG05@6.0"	10/20/2023	0.5 Ft	6.25	0.0431	0.0342	<2.00
BKG05@4.0'	10/20/2023	4.0 Ft	6.12	<0.0100	0.0324	<2.00

Sample ID	Sample Date	Depth (ft)	pH	EC (mmhos/cm)	SAR	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
BKG05@6.0'	10/20/2023	6.0 Ft	6.22	0.0124	0.0289	<2.00

Bold faced values exceed the COGCC Table 915-1 concentrations

Yellow highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

Local Background Samples (BKG01, BKG02, BKG03, BKG04, BKG05)

**TABLE 4**  
**SUMMARY OF METALS IN SOIL CHEMISTRY DATA**  
**NOBLE ENERGY INC.**  
**HSR KIRKHAM TUDOR T4N-R65W-S31 L01, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C023-267**

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@6.0"	10/20/2023	0.5 Ft	<b>0.670</b>	20.8	<0.200	<0.30	1.24	4.22	0.933	<0.260	<0.0200	5.27
SEP01@3.5'	10/20/2023	3.5 Ft	<b>0.652</b>	67.6	<0.200	<0.30	1.24	2.87	1.22	<0.260	<0.0200	5.41
SEP02@3.5'	10/20/2023	3.5 Ft	<b>0.714</b>	25.8	<0.200	<0.30	1.38	3.49	1.09	<0.260	<0.0200	5.83
PWVB01@6.0'	10/20/2023	6.0 Ft	<b>0.824</b>	<b>82.9</b>	<0.200	<0.30	2.58	6.39	2.03	<0.260	0.0520	10.7
PWVE01@5.0'	10/20/2023	5.0 Ft	<b>0.849</b>	56.6	<0.200	<0.30	2.31	4.82	2.14	<0.260	0.0334	9.22
BKG01@6.0"	10/20/2023	0.5 Ft	<b>1.22</b>	30.3	<0.200	<0.30	1.23	4.07	0.906	<0.260	<0.0200	5.58
BKG01@4.0'	10/20/2023	4.0 Ft	<b>1.11</b>	40.7	<0.200	<0.30	1.23	2.57	1.18	<0.260	<0.0200	4.72
BKG01@6.0'	10/20/2023	6.0 Ft	<b>1.12</b>	53.6	<0.200	<0.30	1.08	2.42	1.13	<0.260	<0.0200	5.25
BKG02@6.0"	10/20/2023	0.5 Ft	<b>1.16</b>	29.8	<0.200	<0.30	1.24	4.73	1.19	<0.260	<0.0200	5.70
BKG02@4.0'	10/20/2023	4.0 Ft	<b>1.27</b>	33.3	<0.200	<0.30	1.03	2.90	1.06	<0.260	<0.0200	4.49
BKG02@6.0'	10/20/2023	6.0 Ft	<b>1.08</b>	43.1	<0.200	<0.30	1.15	2.43	1.16	<0.260	<0.0200	4.93
BKG03@6.0"	10/20/2023	0.5 Ft	<b>1.11</b>	41.8	<0.200	<0.30	1.23	3.91	1.05	<0.260	<0.0200	5.32
BKG03@4.0'	10/20/2023	4.0 Ft	<b>1.10</b>	33.4	<0.200	<0.30	0.996	2.30	1.01	<0.260	<0.0200	4.37
BKG03@6.0'	10/20/2023	6.0 Ft	<b>1.07</b>	38.7	<0.200	<0.30	1.06	2.19	1.04	<0.260	<0.0200	4.84
BKG04@6.0"	10/20/2023	0.5 Ft	<b>1.18</b>	45.0	<0.200	<0.30	1.33	4.23	0.949	<0.260	<0.0200	6.35
BKG04@4.0'	10/20/2023	4.0 Ft	<b>1.15</b>	39.8	<0.200	<0.30	1.16	2.60	1.23	<0.260	<0.0200	5.11
BKG04@6.0'	10/20/2023	6.0 Ft	<b>1.12</b>	40.7	<0.200	<0.30	1.07	2.20	1.02	<0.260	<0.0200	5.03
BKG05@6.0"	10/20/2023	0.5 Ft	<b>1.10</b>	38.7	<0.200	<0.30	1.10	2.63	1.04	<0.260	<0.0200	4.95
BKG05@4.0'	10/20/2023	4.0 Ft	<b>1.10</b>	35.2	<0.200	<0.30	0.938	2.18	0.979	<0.260	<0.0200	4.37
BKG05@6.0'	10/20/2023	6.0 Ft	<b>1.09</b>	44.4	<0.200	<0.30	1.10	2.50	1.17	<0.260	<0.0200	5.06

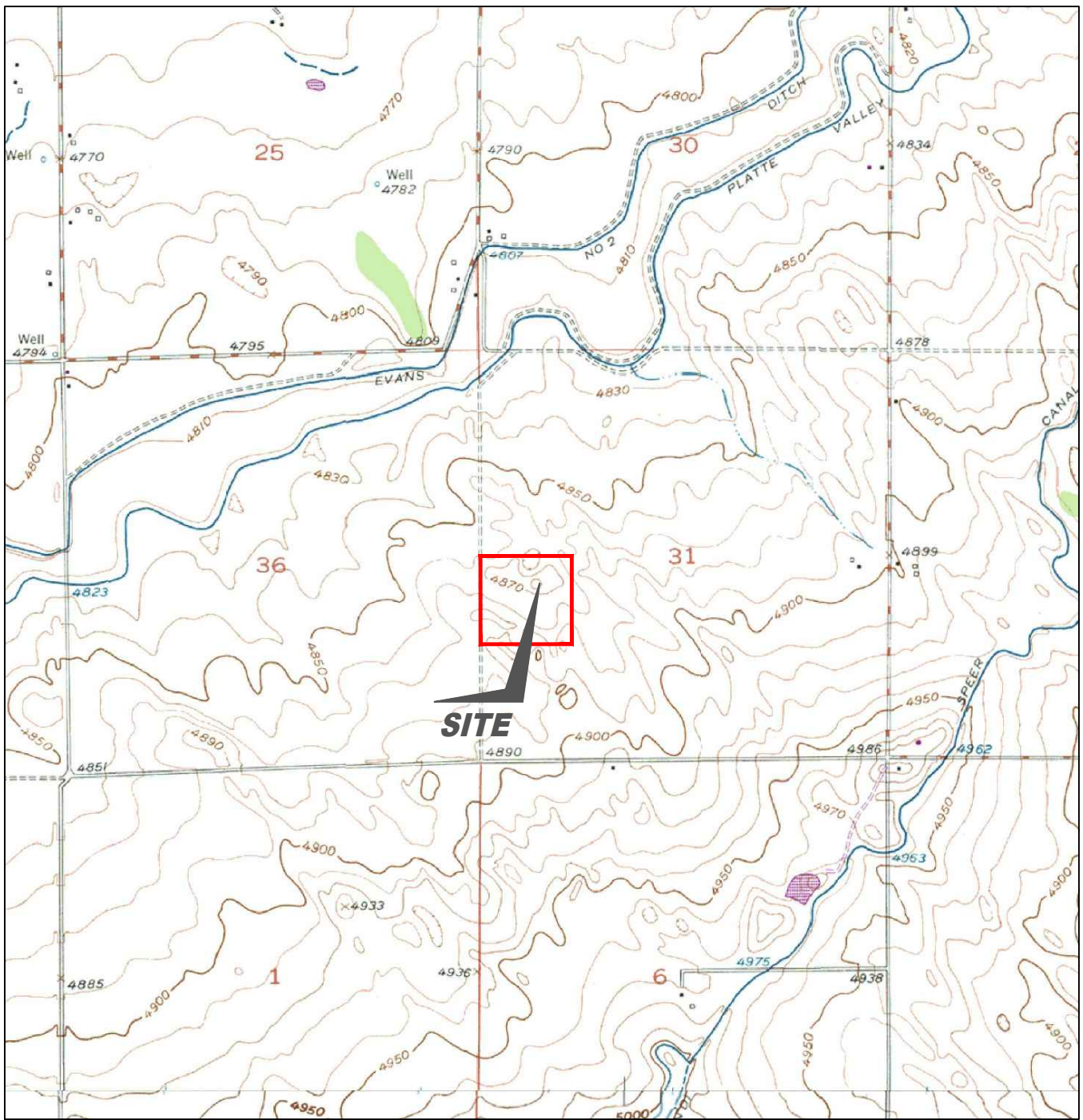
Bold faced values exceed the COGCC Table 915-1 concentrations

Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

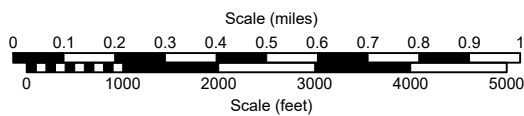
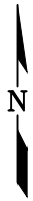
\* Indicates laboratory minimum detection limit in excess of SSL

NA - Not analyzed

Local Background Samples (BKG01, BKG02, BKG03, BKG04, BKG05)



**SITE**

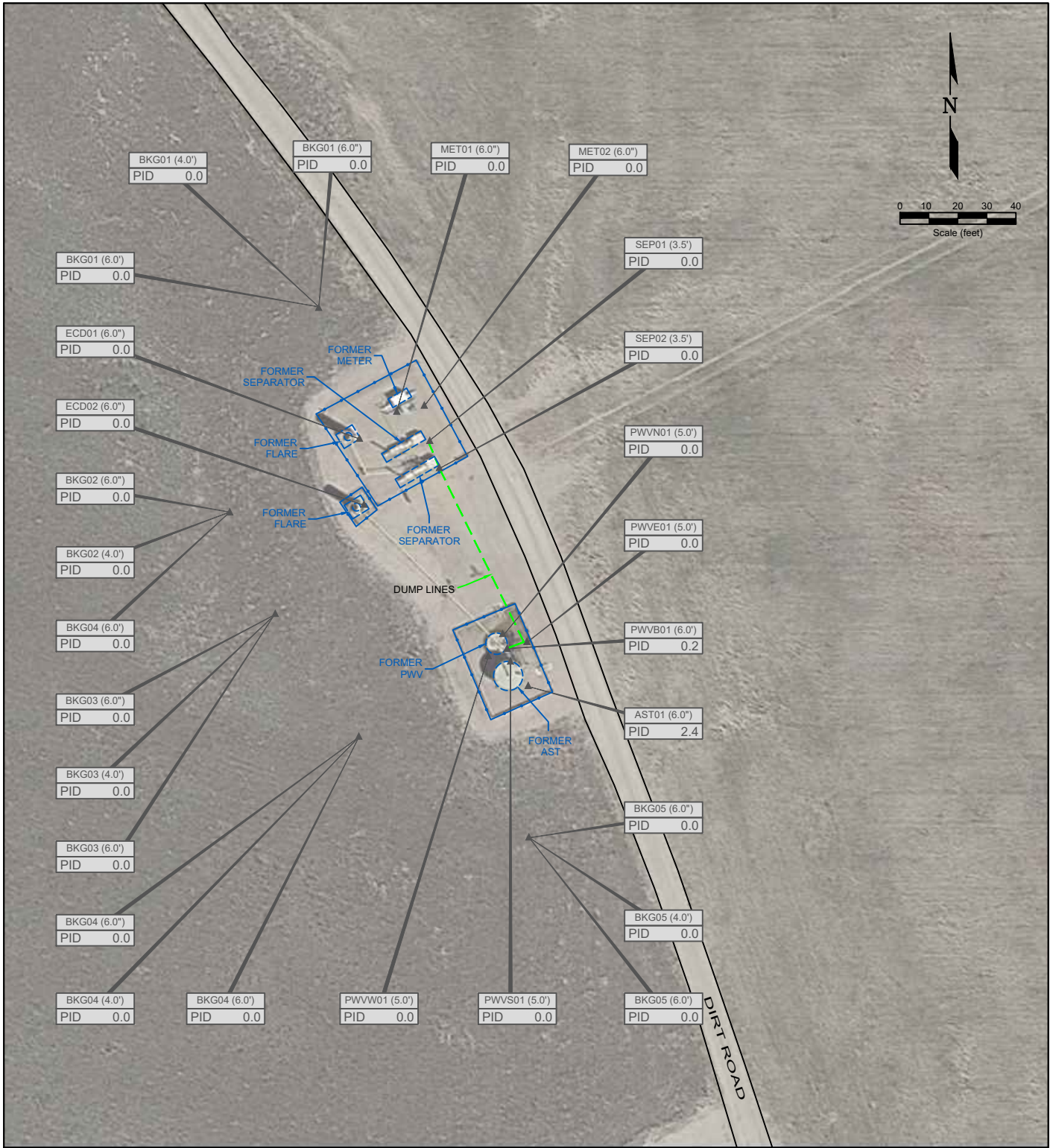


USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1  
**SITE LOCATION MAP**  
**NOBLE ENERGY, INC.**  
**HSR KIRKHAM TUDOR T4N-R65W-S31 L01**  
 NWSW Sec. 31, T4N, R65W, 6th PM  
 Weld County, Colorado  
 40.266193°, -104.710852°

Project # <b>CO23-267</b>	API #	Facility # <b>327866</b>
Date <b>12/21/23</b>	Remediation # <b>30378</b>	Filename <b>23267T</b>





**LEGEND**

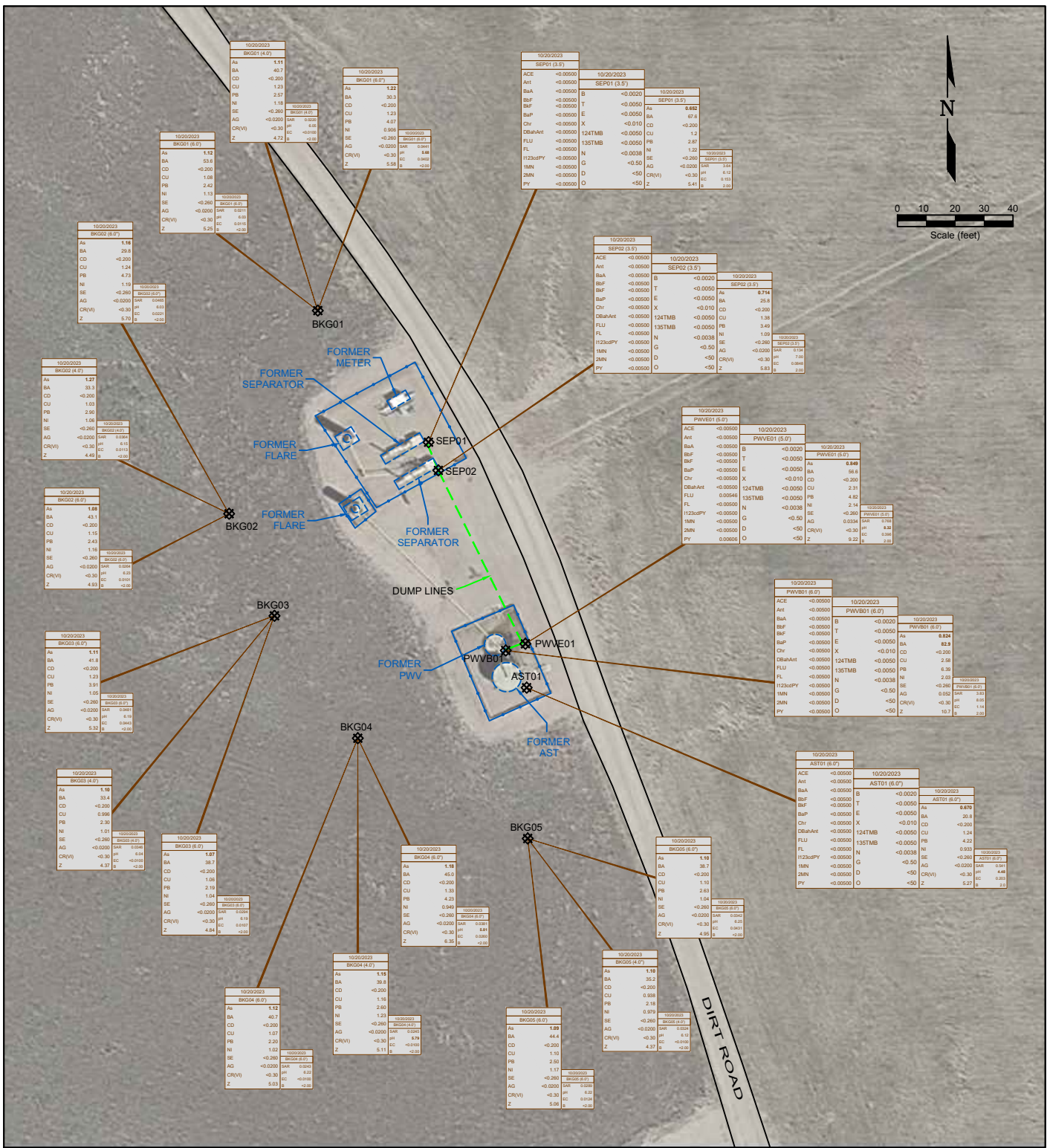
- WELLHEAD LOCATION
  - ▲ PID READING LOCATION
  - ABOVE GROUND STORAGE TANK
  - FORMER FORMER FACILITY
  - FLOW LINE
  - ||||| CONTAINMENT BERM
  - FENCE LINE
  - DUMP LINE
- FL01 PID READING LOCATION IDENTIFICATION  
 PID 0.1 PHOTO IONIZATION DETECTION (ppm)

**Figure 2  
SITE MAP**

**HSR KIRKHAM TUDOR T4N-R65W-S31 L01**  
 NWSW Sec. 31, T4N, R65W, 6th PM  
 Weld County, Colorado  
 40.266193°, -104.710852°

Project # <b>CO23-267</b>	API #	Facility # <b>327866</b>
Date <b>12/21/23</b>	Remediation # <b>30378</b>	Filename <b>23267Q</b>





**LEGEND**

- WELLHEAD LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- FLOW LINE
- CONTAINMENT BERM
- FENCE LINE
- DUMP LINE

DATE SAMPLED	SAMPLE ID & DEPTH (ft)	DATE SAMPLED	SAMPLE ID & DEPTH (ft)	DATE SAMPLED	SAMPLE ID & DEPTH (ft)
4/7/2023	FLU1 (4)	10/20/2023	BKG01 (4.5)	4/7/2023	FLU1 (4)
ACE	<0.0050	ACE	<0.0050	ACE	<0.0050
Ant	<0.0050	Ant	<0.0050	Ant	<0.0050
BAa	<0.0050	BAa	40.7	BAa	35.2
BAF	<0.0050	BAF	1.19	BAF	1.19
BfP	<0.0050	BfP	<0.0050	BfP	<0.0050
BuP	<0.0050	BuP	<0.0050	BuP	<0.0050
Chv	<0.0050	Chv	<0.0050	Chv	<0.0050
DBaH-Ant	<0.0050	DBaH-Ant	<0.0050	DBaH-Ant	<0.0050
FLU	<0.0050	FLU	<0.0050	FLU	<0.0050
H123aPY	<0.0050	H123aPY	<0.0050	H123aPY	<0.0050
IMN	<0.0050	IMN	<0.0050	IMN	<0.0050
ZMN	<0.0050	ZMN	<0.0050	ZMN	<0.0050
PY	<0.0050	PY	<0.0050	PY	<0.0050

**Figure 3**  
**SOIL CHEMISTRY MAP**  
**NOBLE ENERGY, INC.**  
**HSR KIRKHAM TUDOR T4N-R65W-S31 L01**  
**NWSW Sec. 31, T4N, R65W, 6th PM**  
**Weld County, Colorado**  
**40.266193°, -104.710852°**

Project #	API #	Facility #
CO23-267		327866
Date	Remediation #	Filename
12/21/23	30378	23267Q

# Photo Log



*Description:*

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# Photo Log



*Description:*

# Photo Log



***Description:***

# Photo Log



*Description:*

# Photo Log



*Description:*

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# Photo Log



*Description:*

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# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 12, 2023

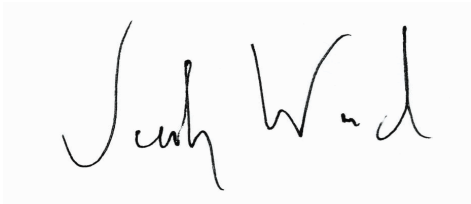
Paul Henchan  
Fremont Environmental  
PO Box 1289  
Wellington, CO 80549

RE: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Work Order #2310408

Enclosed are the results of analyses for samples received by Summit Scientific on 10/20/23 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Jacob Wood For Paul Shrewsbury  
President



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN

Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AST01@6.0"	2310408-01	Soil	10/20/23 00:00	10/20/23 14:00
SEP01@3.5'	2310408-02	Soil	10/20/23 00:00	10/20/23 14:00
SEP02@3.5'	2310408-03	Soil	10/20/23 00:00	10/20/23 14:00
PWVB01@6.0'	2310408-04	Soil	10/20/23 00:00	10/20/23 14:00
PWVE01@5.0'	2310408-05	Soil	10/20/23 00:00	10/20/23 14:00

Summit Scientific

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

# SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 1
2310408	

Client: <b>Frenont Env</b>		Send Data To: Project Manager: <b>Paul Henehan</b>		Send Invoice To: Company: <b>Noble</b>	
Address:		E-Mail: <b>Paulh@frenontenv.com</b>		Project Name/Location: <b>HSR-Kirkham D-31A</b>	
City/State/Zip:		<b>jeffg@frenontenv.com Ethamb@frenontenv.com</b>		AFE#:	
Phone:		Project Name: <b>HSR Kirkham Tender T7N-065W-571</b>		PO/Billing Codes: <b>VWRWE-A2550-ABN</b>	
Sampler Name: <b>JG</b>		Project Number:		Contact:	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Analysis Requested						Special Instructions		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX+N	TMS (915)	DR,ORO,GR0	PAHs (915)		ES,SPH,SAR, Binn	Metals (915)
1	AST01@6.0"	10/20/23		2			X						X	X	X	X	X	X	
2	SEP01@3.5'	↓		↓			↓						↓	↓	↓	↓	↓	↓	
3	SEP02@3.5'	↓		↓			↓						↓	↓	↓	↓	↓	↓	
4	PWV01@6.0'	↓		↓			↓						↓	↓	↓	↓	↓	↓	
5	PWVE01@6.0'	↓		↓			↓						↓	↓	↓	↓	↓	↓	
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			

Relinquished by: <b>JG</b>	Date/Time: <b>10/20/23 1400</b>	Received by: <b>[Signature]</b>	Date/Time: <b>10/20/23 14:00</b>	TAT Business Days	Field DO	Notes:  <b>Bill to Noble</b>
				Same Day	Field EC	
Relinquished by:	Date/Time:	Received by:	Date/Time:	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	<input checked="" type="checkbox"/> Field Turb.	
Temperature Upon Receipt: <b>231</b>	Corrected Temperature	IR gun #: <b>2</b>	HNO3 lot #:			

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2310408

Client: Fremont

Client Project ID: HSR Kirkham Tudor

TTN-7656

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

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

S31-LM

Matrix (Check all that apply)

Air

Soil/Solid

Water

Other

Temp (°C) 23.1

Thermometer # 2

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	No cooling
If custody seals are present, are they intact? <sup>(1)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	no time stamps
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? <b>If yes, contact client and note in narrative.</b>	<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.

[Signature]  
Custodian Printed Name

10/20/23 14:00  
Date/Time



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**AST01@6.0"**  
**2310408-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGJ0904	10/23/23	10/24/23	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0428	107 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0399	99.8 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0394	98.6 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGJ0907	10/23/23	10/24/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	10.1	80.7 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**AST01@6.0"**  
**2310408-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0865	10/23/23	10/23/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0163	48.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0191	57.4 %	40-150		"	"	"	"	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ1115	10/27/23	11/02/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

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

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**AST01@6.0"**  
**2310408-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.670	0.200	mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
Barium	20.8	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	1.24	0.400	"	"	"	"	"	"	
Lead	4.22	0.200	"	"	"	"	"	"	
Nickel	0.933	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	5.27	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ1053	10/26/23	10/27/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	19.4	0.0500	mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
Magnesium	3.81	0.0500	"	"	"	"	"	"	
Sodium	9.95	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.541	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

**AST01@6.0"**  
**2310408-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**


Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	96.7			%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.203	0.0100		mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

Summit Scientific



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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

**AST01@6.0"**  
**2310408-01 (Soil)**


**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>5.11</b>		pH Units	1	BGK0907	10/30/23	11/27/23	EPA 9045D	I-04

Summit Scientific



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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**SEP01@3.5'**  
**2310408-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGJ0904	10/23/23	10/24/23	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0428	107 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0401	100 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0395	98.7 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGJ0907	10/23/23	10/24/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	7.16	57.3 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

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



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**SEP01@3.5'**  
**2310408-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0865	10/23/23	10/23/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0231	69.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0150	45.0 %	40-150		"	"	"	"	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ1115	10/27/23	11/02/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**SEP01@3.5'**  
**2310408-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	0.652	0.200	mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B
Barium	67.6	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.24	0.400	"	"	"	"	"	"
Lead	2.87	0.200	"	"	"	"	"	"
Nickel	1.22	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	5.41	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ1053	10/26/23	10/27/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	53.9	0.0500	mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
Magnesium	5.58	0.0500	"	"	"	"	"	"	
Sodium	105	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.64	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
 Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

**SEP01@3.5'**  
**2310408-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.1		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

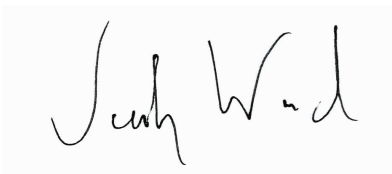
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.153	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.12		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**SEP02@3.5'**  
**2310408-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGJ0904	10/23/23	10/24/23	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0417	104 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0403	101 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0390	97.6 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGJ0907	10/23/23	10/24/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	8.70	69.6 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**SEP02@3.5'**  
**2310408-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0865	10/23/23	10/23/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0147	44.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0151	45.4 %	40-150		"	"	"	"	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ1115	10/27/23	11/02/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**SEP02@3.5'**  
**2310408-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	0.714	0.200	mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B
Barium	25.8	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.38	0.400	"	"	"	"	"	"
Lead	3.49	0.200	"	"	"	"	"	"
Nickel	1.09	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	5.83	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ1053	10/26/23	10/27/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	72.6	0.0500	mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
Magnesium	18.8	0.0500	"	"	"	"	"	"	
Sodium	4.97	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.134	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

**SEP02@3.5'**  
**2310408-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	93.5		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0848	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.00		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**PWVB01@6.0'**  
**2310408-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BGJ0904	10/23/23	10/24/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0423	106 %	50-150	"	"	"	"	"	
Surrogate: Toluene-d8	0.0401	100 %	50-150	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0395	98.8 %	50-150	"	"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0907	10/23/23	10/24/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	8.58	68.6 %	30-150	"	"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**PWVB01@6.0'**  
**2310408-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0865	10/23/23	10/23/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0180	54.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0206	61.8 %	40-150		"	"	"	"	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ1115	10/27/23	11/02/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**PWVB01@6.0'**  
**2310408-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.824	0.200	mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
Barium	82.9	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.58	0.400	"	"	"	"	"	"	
Lead	6.39	0.200	"	"	"	"	"	"	
Nickel	2.03	0.400	"	"	"	"	"	"	
Silver	0.0520	0.0200	"	"	"	"	"	"	
Zinc	10.7	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/20/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ1053	10/26/23	10/27/23	EPA 7196A	

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

Date Sampled: 10/20/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	56.1	0.0500	mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
Magnesium	15.0	0.0500	"	"	"	"	"	"	
Sodium	125	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/20/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	3.83	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**PWVB01@6.0'**  
**2310408-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.1		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

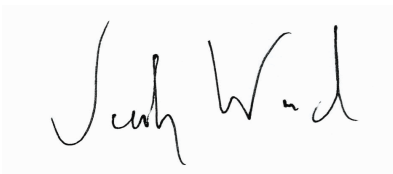
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.14	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.05		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

Summit Scientific



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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**PWVE01@5.0'**  
**2310408-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BGJ0904	10/23/23	10/24/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	0.0431	108 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0401	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0398	99.4 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BGJ0907	10/23/23	10/24/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl	7.23	57.8 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

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Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**PWVE01@5.0'**  
**2310408-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGJ0865	10/23/23	10/23/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
<b>Fluoranthene</b>	<b>0.00546</b>	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
<b>Pyrene</b>	<b>0.00606</b>	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0152	45.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0179	53.6 %	40-150		"	"	"	"	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	ND	2.00	mg/L	1	BGJ1115	10/27/23	11/02/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**PWVE01@5.0'**  
**2310408-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	0.849	0.200	mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B
Barium	56.6	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.31	0.400	"	"	"	"	"	"
Lead	4.82	0.200	"	"	"	"	"	"
Nickel	2.14	0.400	"	"	"	"	"	"
Silver	0.0334	0.0200	"	"	"	"	"	"
Zinc	9.22	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: 10/20/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ1053	10/26/23	10/27/23	EPA 7196A	

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

Date Sampled: 10/20/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	40.7	0.0500	mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
Magnesium	9.04	0.0500	"	"	"	"	"	"	
Sodium	20.8	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: 10/20/23 00:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.768	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
 Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

**PWVE01@5.0'**  
**2310408-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

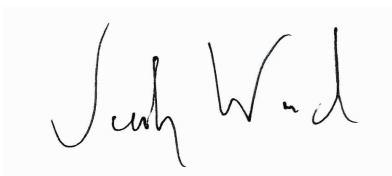
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	91.0		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.396	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

**PWVE01@5.0'**  
**2310408-05 (Soil)**


**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.29</b>		pH Units	1	BGK0907	10/30/23	11/27/23	EPA 9045D	I-04

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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

### 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 BGJ0904 - EPA 5030 Soil MS

##### Blank (BGJ0904-BLK1)

Prepared: 10/23/23 Analyzed: 10/24/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0401		"	0.0400		100	50-150			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.8	50-150			

##### LCS (BGJ0904-BS1)

Prepared: 10/23/23 Analyzed: 10/24/23

Benzene	0.103	0.0020	mg/kg	0.100		103	70-130			
Toluene	0.0959	0.0050	"	0.100		95.9	70-130			
Ethylbenzene	0.107	0.0050	"	0.100		107	70-130			
m,p-Xylene	0.212	0.010	"	0.200		106	70-130			
o-Xylene	0.100	0.0050	"	0.100		100	70-130			
1,2,4-Trimethylbenzene	0.104	0.0050	"	0.100		104	70-130			
1,3,5-Trimethylbenzene	0.103	0.0050	"	0.100		103	70-130			
Naphthalene	0.109	0.0038	"	0.100		109	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0392		"	0.0400		97.9	50-150			
Surrogate: Toluene-d8	0.0405		"	0.0400		101	50-150			
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0400		96.5	50-150			

##### Matrix Spike (BGJ0904-MS1)

Source: 2310385-01

Prepared: 10/23/23 Analyzed: 10/25/23

Benzene	0.0923	0.0020	mg/kg	0.100	ND	92.3	70-130			
Toluene	0.0845	0.0050	"	0.100	ND	84.5	70-130			
Ethylbenzene	0.0868	0.0050	"	0.100	ND	86.8	70-130			
m,p-Xylene	0.165	0.010	"	0.200	ND	82.4	70-130			
o-Xylene	0.0804	0.0050	"	0.100	ND	80.4	70-130			
1,2,4-Trimethylbenzene	0.0731	0.0050	"	0.100	ND	73.1	70-130			
1,3,5-Trimethylbenzene	0.0737	0.0050	"	0.100	ND	73.7	70-130			
Naphthalene	0.0695	0.0038	"	0.100	ND	69.5	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.0441		"	0.0400		110	50-150			
Surrogate: Toluene-d8	0.0408		"	0.0400		102	50-150			
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0400		96.4	50-150			

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Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

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

**Summit Scientific**

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

**Batch BGJ0904 - EPA 5030 Soil MS**

Matrix Spike Dup (BGJ0904-MSD1)	Source: 2310385-01			Prepared: 10/23/23 Analyzed: 10/24/23					
Benzene	0.0890	0.0020	mg/kg	0.100	ND	89.0	70-130	3.71	30
Toluene	0.0815	0.0050	"	0.100	ND	81.5	70-130	3.54	30
Ethylbenzene	0.0871	0.0050	"	0.100	ND	87.1	70-130	0.345	30
m,p-Xylene	0.172	0.010	"	0.200	ND	86.2	70-130	4.48	30
o-Xylene	0.0808	0.0050	"	0.100	ND	80.8	70-130	0.484	30
1,2,4-Trimethylbenzene	0.0778	0.0050	"	0.100	ND	77.8	70-130	6.21	30
1,3,5-Trimethylbenzene	0.0790	0.0050	"	0.100	ND	79.0	70-130	6.92	30
Naphthalene	0.0779	0.0038	"	0.100	ND	77.9	70-130	11.4	30
Surrogate: 1,2-Dichloroethane-d4	0.0415		"	0.0400		104	50-150		
Surrogate: Toluene-d8	0.0409		"	0.0400		102	50-150		
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.2	50-150		

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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
 Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

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

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

**Batch BGJ0907 - EPA 3550A**

**Blank (BGJ0907-BLK1)**

Prepared: 10/23/23 Analyzed: 10/24/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: <i>o</i> -Terphenyl	12.4		"	12.5		99.3	30-150			

**LCS (BGJ0907-BS1)**

Prepared: 10/23/23 Analyzed: 10/24/23

C10-C28 (DRO)	460	50	mg/kg	500		92.0	70-130			
Surrogate: <i>o</i> -Terphenyl	10.3		"	12.5		82.0	30-150			

**Matrix Spike (BGJ0907-MS1)**

Source: 2310385-01

Prepared: 10/23/23 Analyzed: 10/24/23

C10-C28 (DRO)	467	50	mg/kg	500	40.5	85.2	70-130			
Surrogate: <i>o</i> -Terphenyl	10.1		"	12.5		80.4	30-150			

**Matrix Spike Dup (BGJ0907-MSD1)**

Source: 2310385-01

Prepared: 10/23/23 Analyzed: 10/24/23

C10-C28 (DRO)	510	50	mg/kg	500	40.5	93.9	70-130	8.89	20	
Surrogate: <i>o</i> -Terphenyl	9.67		"	12.5		77.4	30-150			

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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**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 BGJ0865 - EPA 5030 Soil MS**

**Blank (BGJ0865-BLK1)**

Prepared & Analyzed: 10/23/23

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.0278		"	0.0333		83.4	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0299		"	0.0333		89.6	40-150			

**LCS (BGJ0865-BS1)**

Prepared & Analyzed: 10/23/23

Acenaphthene	0.0284	0.00500	mg/kg	0.0333		85.2	31-137			
Anthracene	0.0299	0.00500	"	0.0333		89.8	30-120			
Benzo (a) anthracene	0.0296	0.00500	"	0.0333		88.9	30-120			
Benzo (a) pyrene	0.0266	0.00500	"	0.0333		79.8	30-120			
Benzo (b) fluoranthene	0.0298	0.00500	"	0.0333		89.3	30-120			
Benzo (k) fluoranthene	0.0304	0.00500	"	0.0333		91.2	30-120			
Chrysene	0.0314	0.00500	"	0.0333		94.1	30-120			
Dibenz (a,h) anthracene	0.0212	0.00500	"	0.0333		63.5	30-120			
Fluoranthene	0.0309	0.00500	"	0.0333		92.8	30-120			
Fluorene	0.0333	0.00500	"	0.0333		100	30-120			
Indeno (1,2,3-cd) pyrene	0.0301	0.00500	"	0.0333		90.3	30-120			
Pyrene	0.0318	0.00500	"	0.0333		95.3	35-142			
1-Methylnaphthalene	0.0319	0.00500	"	0.0333		95.8	35-142			
2-Methylnaphthalene	0.0351	0.00500	"	0.0333		105	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.0241		"	0.0333		72.3	40-150			
<i>Surrogate: Fluoranthene-d10</i>	0.0309		"	0.0333		92.7	40-150			

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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**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 BGJ0865 - EPA 5030 Soil MS**

<b>Matrix Spike (BGJ0865-MS1)</b>		<b>Source: 2310408-01</b>			<b>Prepared &amp; Analyzed: 10/23/23</b>						
Acenaphthene	0.0178	0.00500	mg/kg	0.0333	ND	53.5	31-137				
Anthracene	0.0158	0.00500	"	0.0333	ND	47.5	30-120				
Benzo (a) anthracene	0.0190	0.00500	"	0.0333	ND	57.0	30-120				
Benzo (a) pyrene	0.0156	0.00500	"	0.0333	ND	46.8	30-120				
Benzo (b) fluoranthene	0.0172	0.00500	"	0.0333	ND	51.6	30-120				
Benzo (k) fluoranthene	0.0171	0.00500	"	0.0333	ND	51.4	30-120				
Chrysene	0.0191	0.00500	"	0.0333	ND	57.4	30-120				
Dibenz (a,h) anthracene	0.0147	0.00500	"	0.0333	ND	44.1	30-120				
Fluoranthene	0.0166	0.00500	"	0.0333	ND	49.9	30-120				
Fluorene	0.0199	0.00500	"	0.0333	ND	59.6	30-120				
Indeno (1,2,3-cd) pyrene	0.0168	0.00500	"	0.0333	ND	50.3	30-120				
Pyrene	0.0201	0.00500	"	0.0333	ND	60.4	35-142				
1-Methylnaphthalene	0.0189	0.00500	"	0.0333	ND	56.7	15-130				
2-Methylnaphthalene	0.0211	0.00500	"	0.0333	ND	63.4	15-130				
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0141</i>		<i>"</i>	<i>0.0333</i>		<i>42.3</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0170</i>		<i>"</i>	<i>0.0333</i>		<i>51.0</i>	<i>40-150</i>				

<b>Matrix Spike Dup (BGJ0865-MSD1)</b>		<b>Source: 2310408-01</b>			<b>Prepared &amp; Analyzed: 10/23/23</b>						
Acenaphthene	0.0173	0.00500	mg/kg	0.0333	ND	52.0	31-137	2.85	30		
Anthracene	0.0181	0.00500	"	0.0333	ND	54.3	30-120	13.4	30		
Benzo (a) anthracene	0.0186	0.00500	"	0.0333	ND	55.9	30-120	1.92	30		
Benzo (a) pyrene	0.0165	0.00500	"	0.0333	ND	49.6	30-120	5.89	30		
Benzo (b) fluoranthene	0.0181	0.00500	"	0.0333	ND	54.3	30-120	5.19	30		
Benzo (k) fluoranthene	0.0181	0.00500	"	0.0333	ND	54.3	30-120	5.42	30		
Chrysene	0.0184	0.00500	"	0.0333	ND	55.3	30-120	3.79	30		
Dibenz (a,h) anthracene	0.0143	0.00500	"	0.0333	ND	42.9	30-120	2.76	30		
Fluoranthene	0.0189	0.00500	"	0.0333	ND	56.7	30-120	12.8	30		
Fluorene	0.0211	0.00500	"	0.0333	ND	63.2	30-120	5.85	30		
Indeno (1,2,3-cd) pyrene	0.0176	0.00500	"	0.0333	ND	52.8	30-120	4.82	30		
Pyrene	0.0194	0.00500	"	0.0333	ND	58.1	35-142	3.95	30		
1-Methylnaphthalene	0.0181	0.00500	"	0.0333	ND	54.2	15-130	4.43	50		
2-Methylnaphthalene	0.0216	0.00500	"	0.0333	ND	64.9	15-130	2.37	50		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0139</i>		<i>"</i>	<i>0.0333</i>		<i>41.6</i>	<i>40-150</i>				
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0191</i>		<i>"</i>	<i>0.0333</i>		<i>57.3</i>	<i>40-150</i>				

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

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

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

**Batch BGJ1115 - EPA 3050B**

**Blank (BGJ1115-BLK1)**

Prepared: 10/27/23 Analyzed: 11/02/23

Boron ND 2.00 mg/L

**LCS (BGJ1115-BS1)**

Prepared: 10/27/23 Analyzed: 11/02/23

Boron 5.41 2.00 mg/L 5.00 108 80-120

**Duplicate (BGJ1115-DUP1)**

Source: 2310408-01

Prepared: 10/27/23 Analyzed: 11/02/23

Boron 0.0223 2.00 mg/L 0.0367 48.6 20 QR-01

**Matrix Spike (BGJ1115-MS1)**

Source: 2310408-01

Prepared: 10/27/23 Analyzed: 11/02/23

Boron 4.97 2.00 mg/L 5.00 0.0367 98.6 75-125

**Matrix Spike Dup (BGJ1115-MSD1)**

Source: 2310408-01

Prepared: 10/27/23 Analyzed: 11/02/23

Boron 4.95 2.00 mg/L 5.00 0.0367 98.4 75-125 0.255 25

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

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

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

**Batch BGJ1126 - EPA 3050B**

**Blank (BGJ1126-BLK1)**

Prepared: 10/27/23 Analyzed: 11/01/23

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

**LCS (BGJ1126-BS1)**

Prepared: 10/27/23 Analyzed: 11/01/23

Arsenic	39.6	0.200	mg/kg wet	40.0	99.1	80-120
Barium	32.4	0.400	"	40.0	81.0	80-120
Cadmium	1.96	0.200	"	2.00	98.2	80-120
Copper	37.6	0.400	"	40.0	94.0	80-120
Lead	23.4	0.200	"	20.0	117	80-120
Nickel	37.6	0.400	"	40.0	94.1	80-120
Silver	1.96	0.0200	"	2.00	98.1	80-120
Zinc	38.2	0.400	"	40.0	95.6	80-120
Selenium	4.50	0.260	"	4.00	112	80-120

**Duplicate (BGJ1126-DUP1)**

Source: 2310408-01

Prepared: 10/27/23 Analyzed: 11/01/23

Arsenic	0.671	0.200	mg/kg dry	0.670	0.247	20
Barium	24.6	0.400	"	20.8	16.7	20
Cadmium	0.111	0.200	"	0.101	9.78	20
Copper	1.27	0.400	"	1.24	2.70	20
Lead	5.07	0.200	"	4.22	18.4	20
Nickel	0.965	0.400	"	0.933	3.31	20
Silver	0.0137	0.0200	"	0.0112	20.0	20
Zinc	5.63	0.400	"	5.27	6.61	20
Selenium	ND	0.260	"	ND		20

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**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 BGJ1126 - EPA 3050B**

**Matrix Spike (BGJ1126-MS1)**

Source: 2310408-01

Prepared: 10/27/23 Analyzed: 11/01/23

Arsenic	22.3	0.200	mg/kg dry	41.4	0.670	52.3	75-125				QM-07
Barium	64.7	0.400	"	41.4	20.8	106	75-125				
Cadmium	2.02	0.200	"	2.07	0.101	92.9	75-125				
Copper	21.9	0.400	"	41.4	1.24	50.0	75-125				QM-07
Lead	22.6	0.200	"	20.7	4.22	88.7	75-125				
Nickel	21.8	0.400	"	41.4	0.933	50.5	75-125				QM-07
Silver	1.89	0.0200	"	2.07	0.0112	90.7	75-125				
Zinc	26.4	0.400	"	41.4	5.27	51.0	75-125				QM-07
Selenium	6.52	0.260	"	4.14	ND	158	75-125				QM-07

**Matrix Spike Dup (BGJ1126-MSD1)**

Source: 2310408-01

Prepared: 10/27/23 Analyzed: 11/01/23

Arsenic	22.2	0.200	mg/kg dry	41.4	0.670	52.0	75-125	0.547	25		QM-07
Barium	60.2	0.400	"	41.4	20.8	95.2	75-125	7.20	25		
Cadmium	1.98	0.200	"	2.07	0.101	91.0	75-125	1.92	25		
Copper	21.6	0.400	"	41.4	1.24	49.1	75-125	1.67	25		QM-07
Lead	21.7	0.200	"	20.7	4.22	84.4	75-125	3.96	25		
Nickel	21.5	0.400	"	41.4	0.933	49.8	75-125	1.23	25		QM-07
Silver	1.82	0.0200	"	2.07	0.0112	87.5	75-125	3.66	25		
Zinc	25.9	0.400	"	41.4	5.27	49.9	75-125	1.70	25		QM-07
Selenium	6.47	0.260	"	4.14	ND	156	75-125	0.733	25		QM-07

**Batch BGK1037 - EPA 3050B**

**Blank (BGK1037-BLK1)**

Prepared: 11/28/23 Analyzed: 11/29/23

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

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

**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 BGK1037 - EPA 3050B**

**LCS (BGK1037-BS1)**

Prepared: 11/28/23 Analyzed: 11/29/23

Arsenic	42.8	0.200	mg/kg wet	40.0		107	80-120			
Barium	40.2	0.400	"	40.0		100	80-120			
Cadmium	2.05	0.200	"	2.00		102	80-120			
Copper	42.6	0.400	"	40.0		106	80-120			
Lead	20.1	0.200	"	20.0		100	80-120			
Nickel	42.8	0.400	"	40.0		107	80-120			
Silver	2.01	0.0200	"	2.00		101	80-120			
Zinc	42.5	0.400	"	40.0		106	80-120			
Selenium	4.30	0.260	"	4.00		108	80-120			

**Duplicate (BGK1037-DUP1)**

Source: 2310408-01

Prepared: 11/28/23 Analyzed: 11/29/23

Arsenic	1.45	0.200	mg/kg dry		0.547			90.2	20	QR-01
Barium	22.0	0.400	"		19.3			13.0	20	
Cadmium	0.197	0.200	"		0.0827			81.8	20	QR-01
Copper	1.11	0.400	"		0.144			154	20	QR-01
Lead	5.57	0.200	"		5.36			3.97	20	
Nickel	1.77	0.400	"		0.847			70.7	20	QR-01
Silver	0.0149	0.0200	"		0.0112			28.6	20	QR-01
Zinc	8.04	0.400	"		4.22			62.4	20	QR-04
Selenium	0.256	0.260	"		ND			200	20	QR-01

**Matrix Spike (BGK1037-MS1)**

Source: 2310408-01

Prepared: 11/28/23 Analyzed: 11/29/23

Arsenic	20.7	0.200	mg/kg dry	41.4	0.547	48.7	75-125			QM-07
Barium	69.6	0.400	"	41.4	19.3	121	75-125			
Cadmium	2.40	0.200	"	2.07	0.0827	112	75-125			
Copper	20.7	0.400	"	41.4	0.144	49.7	75-125			QM-07
Lead	26.3	0.200	"	20.7	5.36	101	75-125			
Nickel	21.3	0.400	"	41.4	0.847	49.4	75-125			QM-07
Silver	2.17	0.0200	"	2.07	0.0112	104	75-125			
Zinc	27.0	0.400	"	41.4	4.22	55.0	75-125			QM-07
Selenium	4.87	0.260	"	4.14	ND	118	75-125			

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

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

**Summit Scientific**

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

**Batch BGK1037 - EPA 3050B**

<b>Matrix Spike Dup (BGK1037-MSD1)</b>	<b>Source: 2310408-01</b>			Prepared: 11/28/23		Analyzed: 11/29/23					
Arsenic	21.7	0.200	mg/kg dry	41.4	0.547	51.1	75-125	4.67	25		QM-07
Barium	74.5	0.400	"	41.4	19.3	133	75-125	6.77	25		QM-07
Cadmium	2.57	0.200	"	2.07	0.0827	120	75-125	6.91	25		
Copper	22.1	0.400	"	41.4	0.144	53.1	75-125	6.70	25		QM-07
Lead	28.0	0.200	"	20.7	5.36	109	75-125	6.14	25		
Nickel	22.6	0.400	"	41.4	0.847	52.6	75-125	6.13	25		QM-07
Silver	2.30	0.0200	"	2.07	0.0112	111	75-125	5.82	25		
Zinc	27.9	0.400	"	41.4	4.22	57.3	75-125	3.47	25		QM-07
Selenium	4.95	0.260	"	4.14	ND	120	75-125	1.59	25		

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

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

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

**Batch BGJ1053 - 3060A Mod**

**Blank (BGJ1053-BLK1)**

Prepared: 10/26/23 Analyzed: 10/27/23

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BGJ1053-BS1)**

Prepared: 10/26/23 Analyzed: 10/27/23

Chromium, Hexavalent 23.9 0.30 mg/kg wet 25.0 95.6 80-120

**Duplicate (BGJ1053-DUP1)**

**Source: 2310408-01**

Prepared: 10/26/23 Analyzed: 10/27/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BGJ1053-MS1)**

**Source: 2310408-01**

Prepared: 10/26/23 Analyzed: 10/27/23

Chromium, Hexavalent 24.4 0.30 mg/kg dry 25.9 ND 94.4 75-125

**Matrix Spike Dup (BGJ1053-MSD1)**

**Source: 2310408-01**

Prepared: 10/26/23 Analyzed: 10/27/23

Chromium, Hexavalent 24.2 0.30 mg/kg dry 25.9 ND 93.4 75-125 1.06 20

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

**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 BGJ1084 - General Preparation**

**Blank (BGJ1084-BLK1)**

Prepared: 10/26/23 Analyzed: 10/31/23

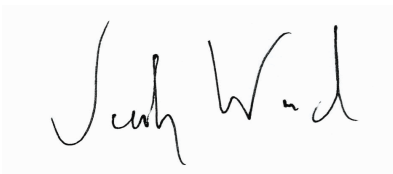
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

**LCS (BGJ1084-BS1)**

Prepared: 10/26/23 Analyzed: 10/31/23

Calcium	5.61	0.0500	mg/L wet	5.00	112	70-130				
Magnesium	5.13	0.0500	"	5.00	103	70-130				
Sodium	5.34	0.0500	"	5.00	107	70-130				

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

**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 BGJ1125 - General Preparation**


**Duplicate (BGJ1125-DUP1)**

**Source: 2310408-01**

Prepared & Analyzed: 10/27/23

% Solids	96.7		%		96.7			0.0334	20	
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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

**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 BGJ1189 - General Preparation**

**Blank (BGJ1189-BLK1)**

Prepared & Analyzed: 10/30/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGJ1189-BS1)**

Prepared & Analyzed: 10/30/23

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 102 95-105

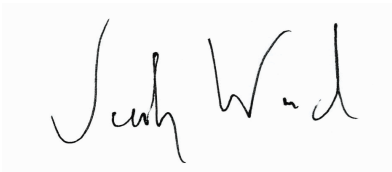
**Duplicate (BGJ1189-DUP1)**

Source: 2310408-01

Prepared & Analyzed: 10/30/23

Specific Conductance (EC) 0.198 0.0100 mmhos/cm 0.203 2.35 20

Summit Scientific



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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 08:55

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

**Summit Scientific**

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

**Batch BGJ1190 - General Preparation**

**LCS (BGJ1190-BS1)**

Prepared & Analyzed: 10/30/23

pH 9.14 pH Units 9.18 99.6 95-105

**Duplicate (BGJ1190-DUP1)**

Source: 2310408-01

Prepared & Analyzed: 10/30/23

pH 4.47 pH Units 4.48 0.223 20

**Batch BGK0907 - General Preparation**

**LCS (BGK0907-BS1)**

Prepared: 11/22/23 Analyzed: 11/27/23

pH 9.11 pH Units 9.18 99.2 95-105

**Duplicate (BGK0907-DUP1)**

Source: 2309489-01

Prepared: 11/22/23 Analyzed: 11/27/23

pH 8.50 pH Units 8.52 0.235 20

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 08:55

### 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-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- I-04 Sample was analyzed out of recommended holding time per clients request.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 12, 2023

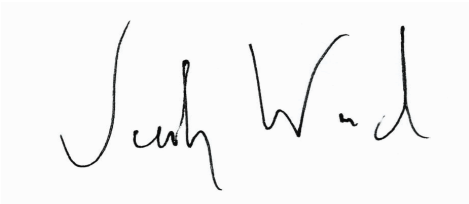
Paul Henchan  
Fremont Environmental  
PO Box 1289  
Wellington, CO 80549

RE: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Work Order #2310409

Enclosed are the results of analyses for samples received by Summit Scientific on 10/20/23 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Jacob Wood". The signature is written in a cursive style with a small "w" at the end of the last name.

Jacob Wood For Paul Shrewsbury  
President



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG01@6.0"	2310409-01	Soil	10/20/23 00:00	10/20/23 14:00
BKG01@4.0'	2310409-02	Soil	10/20/23 00:00	10/20/23 14:00
BKG01@6.0'	2310409-03	Soil	10/20/23 00:00	10/20/23 14:00
BKG02@6.0"	2310409-04	Soil	10/20/23 00:00	10/20/23 14:00
BKG02@4.0'	2310409-05	Soil	10/20/23 00:00	10/20/23 14:00
BKG02@6.0'	2310409-06	Soil	10/20/23 00:00	10/20/23 14:00
BKG03@6.0"	2310409-07	Soil	10/20/23 00:00	10/20/23 14:00
BKG03@4.0'	2310409-08	Soil	10/20/23 00:00	10/20/23 14:00
BKG03@6.0'	2310409-09	Soil	10/20/23 00:00	10/20/23 14:00
BKG04@6.0"	2310409-10	Soil	10/20/23 00:00	10/20/23 14:00
BKG04@4.0'	2310409-11	Soil	10/20/23 00:00	10/20/23 14:00
BKG04@6.0'	2310409-12	Soil	10/20/23 00:00	10/20/23 14:00
BKG05@6.0"	2310409-13	Soil	10/20/23 00:00	10/20/23 14:00
BKG05@4.0'	2310409-14	Soil	10/20/23 00:00	10/20/23 14:00
BKG05@6.0'	2310409-15	Soil	10/20/23 00:00	10/20/23 14:00

Summit Scientific

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



# SUMMIT SCIENTIFIC

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

Lab ID	Page 1 of 2
2310409	

Client: Fremont Env	Send Data To: Project Manager: Paul Henehan	Send Invoice To: Company: Noble
Address:	E-Mail: Paul.H@fremontenv.com	Project Name/Location: HSR-Kirkham 12-31A
City/State/Zip:	jeff@fremontenv.com Ethan@fremontenv.com	AFE#:
Phone:	Project Name: HSR Kirkham Tunnel T7N-R65U-S31 L01	PO/Billing Codes: UWRWE-A2550-ARN
Sampler Name: JG	Project Number:	Contact:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	EC, pH, SAR, Boron	Metals (915)					
1	BK601@6.0"	10/20/23		1			X			X				X	X				
2	BK601@4.0'																		
3	BK601@6.0'																		
4	BK602@6.0"																		
5	BK602@4.0'																		
6	BK602@6.0'																		
7	BK603@6.0"																		
8	BK603@4.0'																		
9	BK603@6.0'																		
10	BK604@6.0"																		
11	BK604@4.0'																		
12	BK604@6.0'																		
13	BK605@6.0"																		
14	BK605@4.0'																		
15	BK605@6.0'																		

Relinquished by: 	Date/Time: 10/20/23 1400	Received by: 	Date/Time: 10/20/23 14:00	TAT Business Days	Field DO	Notes: Bill to Noble
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day	Field EC	
Relinquished by:	Date/Time:	Received by:	Date/Time:	1 Day	Field ORP	
Relinquished by:	Date/Time:	Received by:	Date/Time:	2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
Temperature Upon Receipt: 22.2	Corrected Temperature	IR gun #: 7	HNO3 lot #:	Standard	X	Field Turb.

S<sub>2</sub>

Sample Receipt Checklist

S2 Work Order# 2310409

Client: Fremont

Client Project ID: HSR Kirkhan Tudor T7N - 7650

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

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

531 - 401

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

Matrix (Check all that apply)

Air

Soil/Solid

Water

Other

Temp (°C)

22.2

Thermometer #

2

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

Custodian Printed Name

10/20/23 14:00

Date/Time



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG01@6.0"**  
**2310409-01 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.23</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>4.07</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>0.906</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>5.58</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>6.39</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>1.87</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.493</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG01@6.0"**  
**2310409-01 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	<b>0.0441</b>	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	<b>98.8</b>		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	<b>0.0402</b>	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	<b>5.68</b>		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG01@6.0"**  
**2310409-01 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>1.22</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
<b>Barium</b>	<b>30.3</b>	0.400	"	"	"	"	"	"	

Summit Scientific



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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG01@4.0'**  
**2310409-02 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.23</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>2.57</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>1.18</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>4.72</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>29.1</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>6.40</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.503</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG01@4.0'**  
**2310409-02 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0220	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	97.5		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	ND	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.05		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
 Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG01@4.0'**  
**2310409-02 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>1.11</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
<b>Barium</b>	<b>40.7</b>	0.400	"	"	"	"	"	"	

Summit Scientific



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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG01@6.0'**  
**2310409-03 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.08</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>2.42</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>1.13</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>5.25</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>82.5</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>17.6</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.809</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
 Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG01@6.0'**  
**2310409-03 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0211	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.8		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0115	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.03		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG01@6.0'**  
**2310409-03 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	<b>1.12</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
Barium	<b>53.6</b>	0.400	"	"	"	"	"	"	

Summit Scientific



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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG02@6.0"**  
**2310409-04 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.24</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>4.73</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>1.19</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>5.70</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>5.31</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>1.39</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.466</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG02@6.0"**  
**2310409-04 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0465	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	98.6		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0221	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.03		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG02@6.0"**  
**2310409-04 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>1.16</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
<b>Barium</b>	<b>29.8</b>	0.400	"	"	"	"	"	"	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG02@4.0'**  
**2310409-05 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.03</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>2.90</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>1.06</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>4.49</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>27.9</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>6.33</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.818</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG02@4.0'**  
**2310409-05 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0364	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	97.8		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0113	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.15		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG02@4.0'**  
**2310409-05 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>1.27</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
<b>Barium</b>	<b>33.3</b>	0.400	"	"	"	"	"	"	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG02@6.0'**  
**2310409-06 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.15</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>2.43</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>1.16</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>4.93</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>58.1</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>13.3</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.859</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
 Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG02@6.0'**  
**2310409-06 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0264	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.3		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0101	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.23		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG02@6.0'**  
**2310409-06 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>1.08</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
<b>Barium</b>	<b>43.1</b>	0.400	"	"	"	"	"	"	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG03@6.0"**  
**2310409-07 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.23</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>3.91</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>1.05</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>5.32</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>12.9</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>3.30</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.748</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG03@6.0"**  
**2310409-07 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0481	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	98.5		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0443	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.19		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

Summit Scientific

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 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG03@6.0"**  
**2310409-07 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.11	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
Barium	41.8	0.400	"	"	"	"	"	"	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG03@4.0'**  
**2310409-08 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>0.996</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>2.30</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>1.01</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>4.37</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>43.5</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>10.3</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.978</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG03@4.0'**  
**2310409-08 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0346	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	96.7		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	ND	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.04		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG03@4.0'**  
**2310409-08 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>1.10</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
<b>Barium</b>	<b>33.4</b>	0.400	"	"	"	"	"	"	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG03@6.0'**  
**2310409-09 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Boron	ND	2.00	mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Cadmium	ND	0.200	mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.06</b>	0.400	"	"	"	"	"	"	
<b>Lead</b>	<b>2.19</b>	0.200	"	"	"	"	"	"	
<b>Nickel</b>	<b>1.04</b>	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
<b>Zinc</b>	<b>4.84</b>	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Calcium</b>	<b>69.1</b>	0.0500	mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>15.8</b>	0.0500	"	"	"	"	"	"	
<b>Sodium</b>	<b>1.04</b>	0.0500	"	"	"	"	"	"	

**Calculated Analysis**

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG03@6.0'**  
**2310409-09 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0294	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.1		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0107	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.19		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG03@6.0'**  
**2310409-09 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	<b>1.07</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
Barium	<b>38.7</b>	0.400	"	"	"	"	"	"	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG04@6.0"**  
**2310409-10 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.33</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>4.23</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>0.949</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>6.35</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>3.91</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>0.915</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.322</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG04@6.0"**  
**2310409-10 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0381	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	98.8		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0260	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	5.81		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

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 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG04@6.0"**  
**2310409-10 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	<b>1.18</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
Barium	<b>45.0</b>	0.400	"	"	"	"	"	"	

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PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG04@4.0'**  
**2310409-11 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.16</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>2.60</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>1.23</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>5.11</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>38.4</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>9.09</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.651</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

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 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
 Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG04@4.0'**  
**2310409-11 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0245	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.9		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	ND	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	5.79		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG04@4.0'**  
**2310409-11 (Soil)**

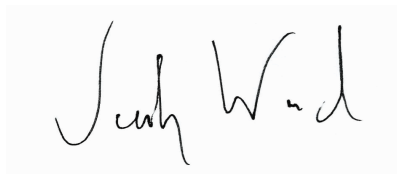
**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>1.15</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
<b>Barium</b>	<b>39.8</b>	0.400	"	"	"	"	"	"	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG04@6.0'**  
**2310409-12 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.07</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>2.20</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>1.02</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>5.03</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>60.5</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>13.9</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.807</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

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Fremont Environmental  
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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG04@6.0'**  
**2310409-12 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0243	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.9		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	ND	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.22		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG04@6.0'**  
**2310409-12 (Soil)**

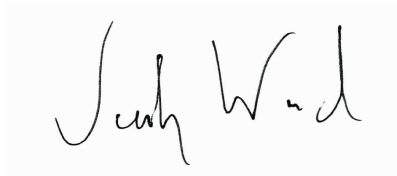
**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>1.12</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
<b>Barium</b>	<b>40.7</b>	0.400	"	"	"	"	"	"	

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PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG05@6.0"**  
**2310409-13 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.10</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>2.63</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>1.04</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>4.95</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>21.5</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>3.90</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.656</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG05@6.0"**  
**2310409-13 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0342	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	98.4		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0431	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.25		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

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 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG05@6.0"**  
**2310409-13 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	<b>1.10</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
Barium	<b>38.7</b>	0.400	"	"	"	"	"	"	

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG05@4.0'**  
**2310409-14 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>0.938</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>2.18</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>0.979</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>4.37</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>43.4</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>9.83</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.909</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG05@4.0'**  
**2310409-14 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0324	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	97.4		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	ND	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.12		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

Summit Scientific

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 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG05@4.0'**  
**2310409-14 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>1.10</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
<b>Barium</b>	<b>35.2</b>	0.400	"	"	"	"	"	"	

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PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG05@6.0'**  
**2310409-15 (Soil)**

**Summit Scientific**

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Boron	ND	2.00		mg/L	1	BGJ1131	10/27/23	11/01/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Cadmium	ND	0.200		mg/kg dry	1	BGJ1126	10/27/23	11/01/23	EPA 6020B	
<b>Copper</b>	<b>1.10</b>	0.400		"	"	"	"	"	"	
<b>Lead</b>	<b>2.50</b>	0.200		"	"	"	"	"	"	
<b>Nickel</b>	<b>1.17</b>	0.400		"	"	"	"	"	"	
Silver	ND	0.0200		"	"	"	"	"	"	
<b>Zinc</b>	<b>5.06</b>	0.400		"	"	"	"	"	"	
Selenium	ND	0.260		"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chromium, Hexavalent	ND	0.30		mg/kg dry	1	BGJ0997	10/25/23	10/25/23	EPA 7196A	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Calcium</b>	<b>46.3</b>	0.0500		mg/L dry	1	BGJ1084	10/26/23	10/31/23	EPA 6020B	
<b>Magnesium</b>	<b>10.3</b>	0.0500		"	"	"	"	"	"	
<b>Sodium</b>	<b>0.835</b>	0.0500		"	"	"	"	"	"	

**Calculated Analysis**

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**BKG05@6.0'**  
**2310409-15 (Soil)**

**Summit Scientific**

**Calculated Analysis**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0289	0.00100	units	1	BGK0021	11/01/23	11/01/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	95.7		%	1	BGJ1125	10/27/23	10/27/23	Calculation	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.0124	0.0100	mmhos/cm	1	BGJ1189	10/30/23	10/30/23	EPA 120.1	

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

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	6.22		pH Units	1	BGJ1190	10/30/23	10/30/23	EPA 9045D	

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 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
 Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**BKG05@6.0'**  
**2310409-15 (Soil)**


**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **10/20/23 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>1.09</b>	0.200	mg/kg dry	1	BGK1037	10/27/23	11/29/23	EPA 6020B	
<b>Barium</b>	<b>44.4</b>	0.400	"	"	"	"	"	"	

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**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 BGJ1131 - EPA 3050B**

**Blank (BGJ1131-BLK1)**

Prepared: 10/27/23 Analyzed: 11/01/23

Boron ND 2.00 mg/L

**LCS (BGJ1131-BS1)**

Prepared: 10/27/23 Analyzed: 11/01/23

Boron 5.33 2.00 mg/L 5.00 107 80-120

**Duplicate (BGJ1131-DUP1)**

**Source: 2310409-01**

Prepared: 10/27/23 Analyzed: 11/01/23

Boron 0.0538 2.00 mg/L 0.0631 16.0 20

**Matrix Spike (BGJ1131-MS1)**

**Source: 2310409-01**

Prepared: 10/27/23 Analyzed: 11/01/23

Boron 5.31 2.00 mg/L 5.00 0.0631 105 75-125

**Matrix Spike Dup (BGJ1131-MSD1)**

**Source: 2310409-01**

Prepared: 10/27/23 Analyzed: 11/01/23

Boron 5.48 2.00 mg/L 5.00 0.0631 108 75-125 3.15 25

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Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

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

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

**Batch BGJ1126 - EPA 3050B**

**Blank (BGJ1126-BLK1)**

Prepared: 10/27/23 Analyzed: 11/01/23

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

**LCS (BGJ1126-BS1)**

Prepared: 10/27/23 Analyzed: 11/01/23

Arsenic	39.6	0.200	mg/kg wet	40.0	99.1	80-120
Barium	32.4	0.400	"	40.0	81.0	80-120
Cadmium	1.96	0.200	"	2.00	98.2	80-120
Copper	37.6	0.400	"	40.0	94.0	80-120
Lead	23.4	0.200	"	20.0	117	80-120
Nickel	37.6	0.400	"	40.0	94.1	80-120
Silver	1.96	0.0200	"	2.00	98.1	80-120
Zinc	38.2	0.400	"	40.0	95.6	80-120
Selenium	4.50	0.260	"	4.00	112	80-120

**Duplicate (BGJ1126-DUP1)**

Source: 2310408-01

Prepared: 10/27/23 Analyzed: 11/01/23

Arsenic	0.671	0.200	mg/kg dry	0.670	0.247	20
Barium	24.6	0.400	"	20.8	16.7	20
Cadmium	0.111	0.200	"	0.101	9.78	20
Copper	1.27	0.400	"	1.24	2.70	20
Lead	5.07	0.200	"	4.22	18.4	20
Nickel	0.965	0.400	"	0.933	3.31	20
Silver	0.0137	0.0200	"	0.0112	20.0	20
Zinc	5.63	0.400	"	5.27	6.61	20
Selenium	ND	0.260	"	ND		20

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Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**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 BGJ1126 - EPA 3050B**

**Matrix Spike (BGJ1126-MS1)**

Source: 2310408-01

Prepared: 10/27/23 Analyzed: 11/01/23

Arsenic	22.3	0.200	mg/kg dry	41.4	0.670	52.3	75-125				QM-07
Barium	64.7	0.400	"	41.4	20.8	106	75-125				
Cadmium	2.02	0.200	"	2.07	0.101	92.9	75-125				
Copper	21.9	0.400	"	41.4	1.24	50.0	75-125				QM-07
Lead	22.6	0.200	"	20.7	4.22	88.7	75-125				
Nickel	21.8	0.400	"	41.4	0.933	50.5	75-125				QM-07
Silver	1.89	0.0200	"	2.07	0.0112	90.7	75-125				
Zinc	26.4	0.400	"	41.4	5.27	51.0	75-125				QM-07
Selenium	6.52	0.260	"	4.14	ND	158	75-125				QM-07

**Matrix Spike Dup (BGJ1126-MSD1)**

Source: 2310408-01

Prepared: 10/27/23 Analyzed: 11/01/23

Arsenic	22.2	0.200	mg/kg dry	41.4	0.670	52.0	75-125	0.547	25		QM-07
Barium	60.2	0.400	"	41.4	20.8	95.2	75-125	7.20	25		
Cadmium	1.98	0.200	"	2.07	0.101	91.0	75-125	1.92	25		
Copper	21.6	0.400	"	41.4	1.24	49.1	75-125	1.67	25		QM-07
Lead	21.7	0.200	"	20.7	4.22	84.4	75-125	3.96	25		
Nickel	21.5	0.400	"	41.4	0.933	49.8	75-125	1.23	25		QM-07
Silver	1.82	0.0200	"	2.07	0.0112	87.5	75-125	3.66	25		
Zinc	25.9	0.400	"	41.4	5.27	49.9	75-125	1.70	25		QM-07
Selenium	6.47	0.260	"	4.14	ND	156	75-125	0.733	25		QM-07

**Batch BGK1037 - EPA 3050B**

**Blank (BGK1037-BLK1)**

Prepared: 11/28/23 Analyzed: 11/29/23

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

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

**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 BGK1037 - EPA 3050B**

**LCS (BGK1037-BS1)**

Prepared: 11/28/23 Analyzed: 11/29/23

Arsenic	42.8	0.200	mg/kg wet	40.0		107	80-120			
Barium	40.2	0.400	"	40.0		100	80-120			
Cadmium	2.05	0.200	"	2.00		102	80-120			
Copper	42.6	0.400	"	40.0		106	80-120			
Lead	20.1	0.200	"	20.0		100	80-120			
Nickel	42.8	0.400	"	40.0		107	80-120			
Silver	2.01	0.0200	"	2.00		101	80-120			
Zinc	42.5	0.400	"	40.0		106	80-120			
Selenium	4.30	0.260	"	4.00		108	80-120			

**Duplicate (BGK1037-DUP1)**

Source: 2310408-01

Prepared: 11/28/23 Analyzed: 11/29/23

Arsenic	1.45	0.200	mg/kg dry		0.547			90.2	20	QR-01
Barium	22.0	0.400	"		19.3			13.0	20	
Cadmium	0.197	0.200	"		0.0827			81.8	20	QR-01
Copper	1.11	0.400	"		0.144			154	20	QR-01
Lead	5.57	0.200	"		5.36			3.97	20	
Nickel	1.77	0.400	"		0.847			70.7	20	QR-01
Silver	0.0149	0.0200	"		0.0112			28.6	20	QR-01
Zinc	8.04	0.400	"		4.22			62.4	20	QR-04
Selenium	0.256	0.260	"		ND			200	20	QR-01

**Matrix Spike (BGK1037-MS1)**

Source: 2310408-01

Prepared: 11/28/23 Analyzed: 11/29/23

Arsenic	20.7	0.200	mg/kg dry	41.4	0.547	48.7	75-125			QM-07
Barium	69.6	0.400	"	41.4	19.3	121	75-125			
Cadmium	2.40	0.200	"	2.07	0.0827	112	75-125			
Copper	20.7	0.400	"	41.4	0.144	49.7	75-125			QM-07
Lead	26.3	0.200	"	20.7	5.36	101	75-125			
Nickel	21.3	0.400	"	41.4	0.847	49.4	75-125			QM-07
Silver	2.17	0.0200	"	2.07	0.0112	104	75-125			
Zinc	27.0	0.400	"	41.4	4.22	55.0	75-125			QM-07
Selenium	4.87	0.260	"	4.14	ND	118	75-125			

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05


**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 BGK1037 - EPA 3050B**

<b>Matrix Spike Dup (BGK1037-MSD1)</b>	<b>Source: 2310408-01</b>			Prepared: 11/28/23		Analyzed: 11/29/23					
Arsenic	21.7	0.200	mg/kg dry	41.4	0.547	51.1	75-125	4.67	25		QM-07
Barium	74.5	0.400	"	41.4	19.3	133	75-125	6.77	25		QM-07
Cadmium	2.57	0.200	"	2.07	0.0827	120	75-125	6.91	25		
Copper	22.1	0.400	"	41.4	0.144	53.1	75-125	6.70	25		QM-07
Lead	28.0	0.200	"	20.7	5.36	109	75-125	6.14	25		
Nickel	22.6	0.400	"	41.4	0.847	52.6	75-125	6.13	25		QM-07
Silver	2.30	0.0200	"	2.07	0.0112	111	75-125	5.82	25		
Zinc	27.9	0.400	"	41.4	4.22	57.3	75-125	3.47	25		QM-07
Selenium	4.95	0.260	"	4.14	ND	120	75-125	1.59	25		

Summit Scientific



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Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

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

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

**Batch BGJ0997 - 3060A Mod**

**Blank (BGJ0997-BLK1)**

Prepared & Analyzed: 10/25/23

Chromium, Hexavalent      ND      0.30 mg/kg wet

**LCS (BGJ0997-BS1)**

Prepared & Analyzed: 10/25/23

Chromium, Hexavalent      25.0      0.30 mg/kg wet      25.0      99.8      80-120

**Duplicate (BGJ0997-DUP1)**

**Source: 2310382-01**

Prepared & Analyzed: 10/25/23

Chromium, Hexavalent      ND      0.30 mg/kg dry      ND      20

**Matrix Spike (BGJ0997-MS1)**

**Source: 2310382-01**

Prepared & Analyzed: 10/25/23

Chromium, Hexavalent      28.3      0.30 mg/kg dry      29.0      ND      97.8      75-125

**Matrix Spike Dup (BGJ0997-MSD1)**

**Source: 2310382-01**

Prepared & Analyzed: 10/25/23

Chromium, Hexavalent      28.3      0.30 mg/kg dry      29.0      ND      97.6      75-125      0.205      20

Summit Scientific

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 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**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 BGJ1084 - General Preparation**

**Blank (BGJ1084-BLK1)**

Prepared: 10/26/23 Analyzed: 10/31/23

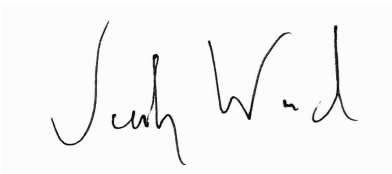
Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

**LCS (BGJ1084-BS1)**

Prepared: 10/26/23 Analyzed: 10/31/23

Calcium	5.61	0.0500	mg/L wet	5.00	112	70-130				
Magnesium	5.13	0.0500	"	5.00	103	70-130				
Sodium	5.34	0.0500	"	5.00	107	70-130				

Summit Scientific



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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**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 BGJ1125 - General Preparation**


**Duplicate (BGJ1125-DUP1)**

**Source: 2310408-01**

Prepared & Analyzed: 10/27/23

% Solids	96.7		%		96.7			0.0334	20	
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Summit Scientific



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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01  
 Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**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 BGJ1189 - General Preparation**

**Blank (BGJ1189-BLK1)**

Prepared & Analyzed: 10/30/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGJ1189-BS1)**

Prepared & Analyzed: 10/30/23

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 102 95-105

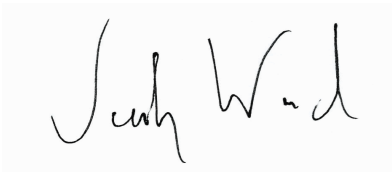
**Duplicate (BGJ1189-DUP1)**

**Source: 2310408-01**

Prepared & Analyzed: 10/30/23

Specific Conductance (EC) 0.198 0.0100 mmhos/cm 0.203 2.35 20

Summit Scientific



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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
 Project Manager: Paul Henchan

**Reported:**  
 12/12/23 12:05

**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 BGJ1190 - General Preparation**

**LCS (BGJ1190-BS1)**

Prepared & Analyzed: 10/30/23

pH 9.14 pH Units 9.18 99.6 95-105

**Duplicate (BGJ1190-DUP1)**

Source: 2310408-01

Prepared & Analyzed: 10/30/23

pH 4.47 pH Units 4.48 0.223 20

Summit Scientific

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Project: Noble - HSR Kirkham Tudor 17N-R65W-S31 L01

Project Number: UWRWE-A2550-ABN  
Project Manager: Paul Henchan

**Reported:**  
12/12/23 12:05

### 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-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- 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