



## **Facility Closure Investigation and Environmental Summary**

WCL 24-5 Wellhead

ECMC Remediation Project #21028

Weld County, Colorado

### **Attachments:**

**Figure 1 – General Location Map**

**Figure 2 – Wellhead Soil Sample and Field Screening Locations**

**Table 1 – Soil Sample and Field Screening Location Information**

**Table 2 – Soil Analytical Results Summary Table – Volatile Organics**

**Table 3 – Soil Analytical Results Summary Table – PAHs**

**Table 4 – Soil Analytical Results Summary Table – Soil Suitability**

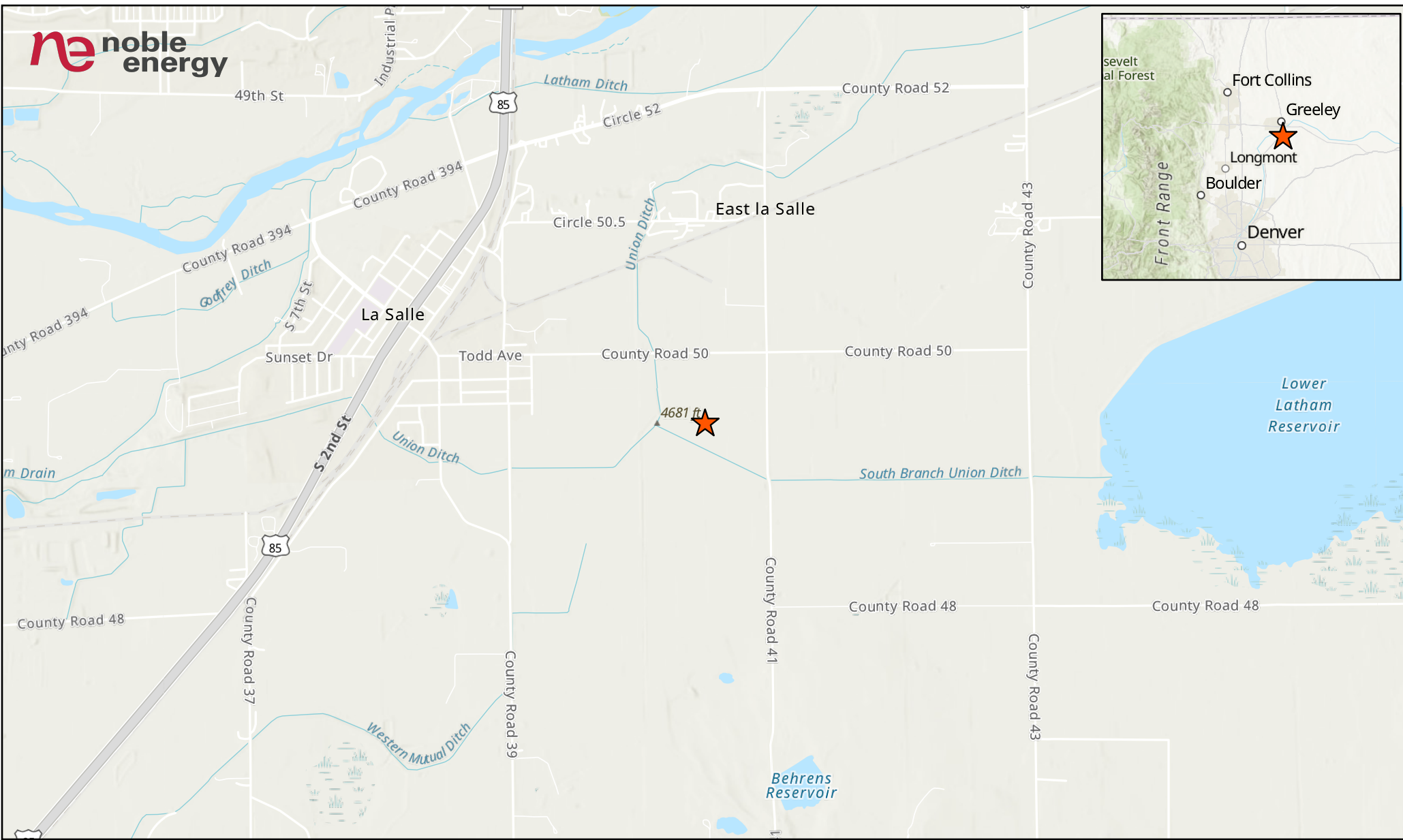
**Table 5 – Soil Analytical Results Summary Table – Metals**

**Attachment A: Photographic Log**

**Attachment B: Facility Closure Checklists**

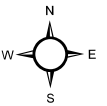
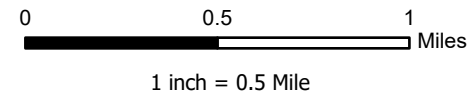
**Attachment C: Laboratory Analytical Reports**

## **FIGURES**



**LEGEND**

 Site Location



Project No: 024-247

Map By: JW

Date: 07/09/2024

**WCL 24-5 WELLHEAD  
GENERAL LOCATION MAP**  
NOBLE ENERGY  
SE 1/4 NE 1/4 SECTION 5  
T4N R65W, 6TH PM  
WELD COUNTY, COLORADO



1843 Sunlight Dr.  
Longmont, CO 80504  
303.378.4036

Figure

1

WH01@6	
6/6/2024	
pH:	8.40
Arsenic (mg/kg):	2.00
Barium (mg/kg):	200

WH01-N@4 (0.0)

WH01-E@4 (0.0)

FLR01@4	
6/6/2024	
pH:	8.47
Arsenic (mg/kg):	2.01
Barium (mg/kg):	92.8

WH01-S@4 (0.0)

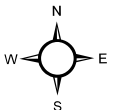
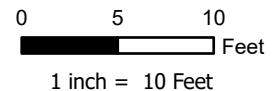
**LABEL LEGEND**  
 XXXX@X: SAMPLE NAME @ DEPTH IN FEET  
 WH: WELLHEAD SAMPLE  
 FLR: FLOWLINE RISER SAMPLE  
**RED**: ABOVE ECMC TABLE 915-1 GWSSL

Maxar, Microsoft

**Legend**

- Soil Sample
- Screening Location

**NOTES:**  
 - Sample Label (PID Result in ppm)  
 - ppm = parts per million  
 - PID = photoionization detector



Project No: 024-247  
 Map By: JW  
 Date: 07/09/2024

**WCL 24-5 WELLHEAD  
 SOIL SAMPLE AND FIELD SCREENING LOCATIONS**  
 NOBLE ENERGY  
 SE 1/4 NE 1/4 SECTION 5  
 T4N R65W, 6TH PM  
 WELD COUNTY, COLORADO



1843 Sunlight Drive  
 Longmont, CO 80504  
 303.378.4036

Figure  
 2

## **TABLES**

**TABLE 1**  
**FIELD DATA SUMMARY TABLE**  
**NOBLE 100322**  
**WCL 24-5 WELLHEAD, WELD COUNTY, COLORADO**  
**REM # 21028**

Sample ID	Sample Date	Depth (ft-bgs)	GPS Data		VOC Concentration (ppm)
			Latitude/Longitude		
WH01@6	6/6/2024	6	40.344624	-104.682327	0.0
FLR01@4	6/6/2024	4	40.344623	-104.682378	0.0
WH01-N@4	6/6/2024	4	40.344666	-104.682328	0.0
WH01-E@4	6/6/2024	4	40.344626	-104.682275	0.0
WH01-S@4	6/6/2024	4	40.344587	-104.682322	0.0

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

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

ppm - Parts per million

ft-bgs - feet below ground surface

TABLE 2  
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA  
NOBLE 100322  
WCL 24-5 WELLHEAD, WELD COUNTY, COLORADO  
REM # 21028

Sample ID	Sample Date	Depth (ft-bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	1,2,4-Trimethyl-Benzene (mg/kg)	1,3,5-Trimethyl-Benzene (mg/kg)	Naphthalene (mg/kg)	TPH (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500	500**		
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	500**		
WH01@6	6/6/2024	6	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.002	<125.200	<0.200	<25.0	<100
FLR01@4	6/6/2024	4	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.002	<125.200	<0.200	<25.0	<100

1. Grey highlighted soil analytical values indicate result is less than laboratory reporting limit

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

ft-bgs - feet below ground surface

mg/kg - milligrams per kilogram

TABLE 3  
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA  
NOBLE 100322  
WCL 24-5 WELLHEAD, WELD COUNTY, COLORADO  
REM # 21028

Sample ID	Sample Date	Depth (ft-bgs)	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
WH01@6	6/6/2024	6	<0.020	<0.020	<0.005	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002
FLR01@4	6/6/2024	4	<0.020	<0.020	<0.005	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002

1. Grey highlighted soil analytical values indicate result is less than laboratory reporting limit

ft-bgs - feet below ground surface

mg/kg - milligrams per kilogram

**TABLE 4**  
**SUMMARY OF SOIL SUITABILITY FOR RECLAMATION**  
**NOBLE 100322**  
**WCL 24-5 WELLHEAD, WELD COUNTY, COLORADO**  
**REM # 21028**

Sample ID	Sample Date	Depth (ft-bgs)	pH (Standard Units)	EC (mmhos/cm)	SAR (Standard Units)	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
WH01@6	6/6/2024	6	8.40	0.326	1.88	<0.0995
FLR01@4	6/6/2024	4	8.47	0.396	1.95	0.128

1. **RED** - Above ECMC Table 915-1 Standards
  2. Grey highlighted soil analytical values indicate result is less than laboratory reporting limit
- ft-bgs - feet below ground surface  
EC - Electrical Conductivity  
SAR - Sodium adsorption ratio  
mmhos/cm - millimhos per centimeter  
mg/L - milligrams per liter

**TABLE 5**  
**SUMMARY OF METALS IN SOIL CHEMISTRY DATA**  
**NOBLE 100322**  
**WCL 24-5 WELLHEAD, WELD COUNTY, COLORADO**  
**REM # 21028**

Sample ID	Sample Date	Depth (ft-bgs)	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
WH01@6	6/6/2024	6	2.00	200	0.113	<0.105*	<9.43	6.84	5.24	<0.245	0.104	<34.9
FLR01@4	6/6/2024	4	2.01	92.8	0.230	<0.119*	10.3	9.44	5.24	<0.231	0.143	36.5

1. **RED** - Above ECMC Table 915-1 Standards

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

3. Grey highlighted soil analytical values indicate result is less than laboratory reporting limit

\* Indicates laboratory minimum detection limit in excess of SSL

ft-bgs - feet below ground surface

mg/kg - milligrams per kilogram

**ATTACHMENT A  
PHOTOGRAPHIC LOG**

WCL 24-5 Wellhead Photographic Log



WCL 24-5 Wellhead Photographic Log



WCL 24-5 Wellhead Photographic Log



WCL 24-5 Wellhead Photographic Log



**ATTACHMENT B  
FACILITY CLOSURE CHECKLISTS**

# Wellhead Closure Checklist

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

Additional attachments (optional):		Pit Closure		Tank Battery Closure		Flowline Closure		Partially Buried Vault Closure	
Site Name & COGCC Facility Number: WCL 24-5, 412339		Date: 6/6/2024					Remediation Project #: 21028		
Associated Wells: NA		Age of Site: 2/10/2010 - spud date					Number of Photos Attached: 4		
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) 40.344638 / -104.682315							Estimated Facility Size (acres): ~0.01		
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)  Overall good.									
USCS Soil Type: SM					Estimated Depth to Groundwater: Unknown/Not encountered				
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.									
Wellhead(s)									
Well API	05-123-30418								
Age	2/10/2010 - spud								
Condition of surface around wellhead	Good.								
PID Readings	0.0 ppm								
Condition of subsurface (staining present)	Good.								
PID Readings	0.0 ppm								
Sample taken? Location/Sample ID#	WH01@6, FLR01@4								
Photo Number(s)	1-4								
Other observations regarding wellheads:  None observed.									
Summary									
Was impacted soil identified? <input checked="" type="radio"/> No      Yes - less than 10 cubic yards      Yes - more than 10 cubic yards									
Total number of samples field screened: 5					Total number of samples collected: 5				
Highest PID Reading: 0.0 ppm					Total number of samples submitted to lab for analysis: 2				
If more than 10 cubic yards of impacted soil were observed: NA									
Vertical extent:					Estimated spill volume:				
Lateral extent:					Volume of soil removed:				
Is additional investigation required?									
Was groundwater encountered during the investigation? <input checked="" type="radio"/> No      Yes - not impacted or in contact with impacted soils      Yes - groundwater impacted and/or in contact with impacted soils									
Measured depth to groundwater:					Was remedial groundwater removal conducted?      Yes      No				
Date Groundwater was encountered:					Commencement date of removal:				
Sheen on groundwater?      Yes      No					Volume of groundwater removed prior to sampling:				
Free product observed?      Yes      No					Volume of groundwater removed post sampling:				
Total number of samples collected:					Total Volume of groundwater removed:				
Total number of samples submitted to lab for analysis:									