



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

Klausner 1 Wellhead

ECMC Remediation Project #37555

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**

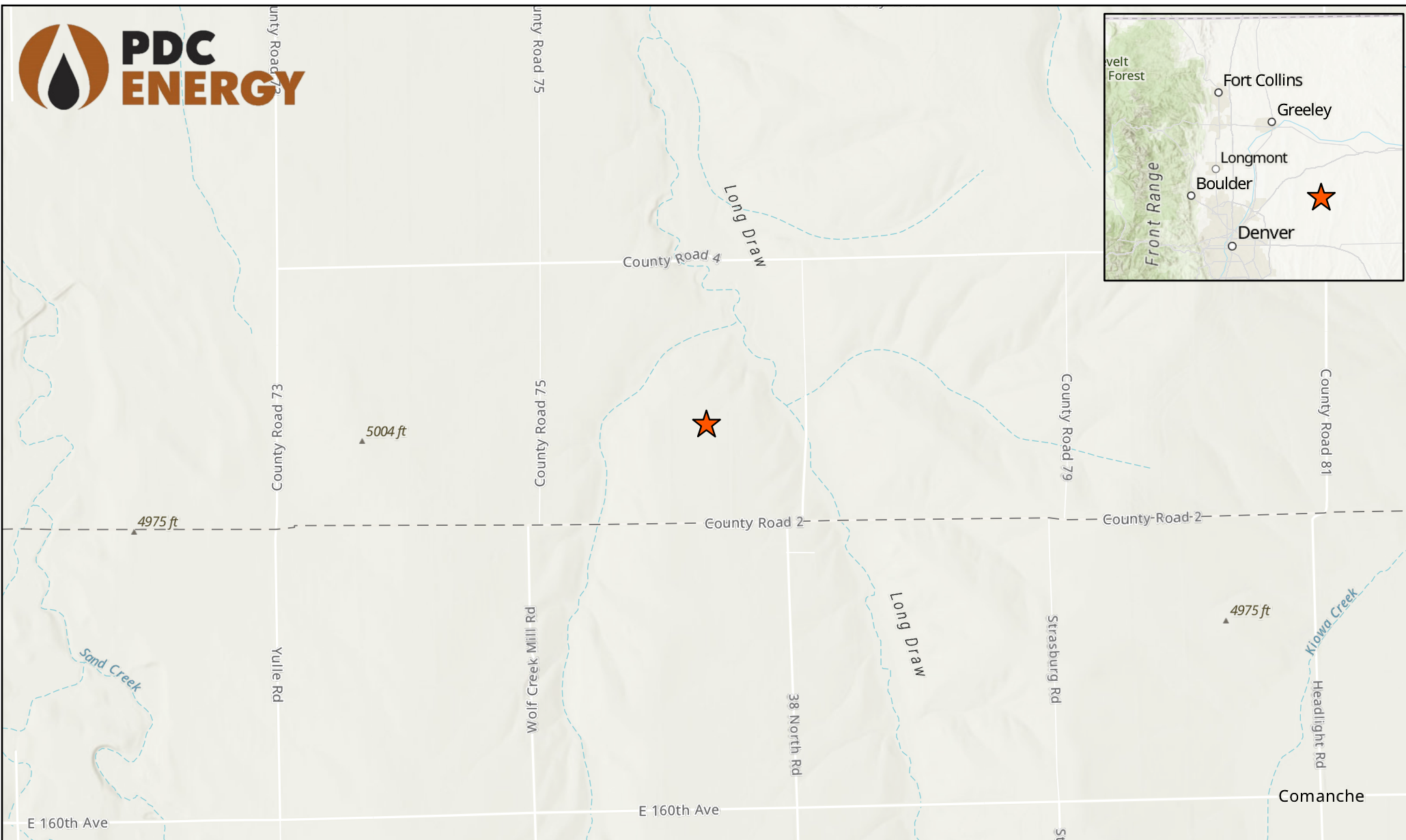
**Table 4 – Soil Analytical Results Summary Table – Soil Suitability**

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

**Attachment A: Photographic Log**

**Attachment B: Facility Closure Checklists**

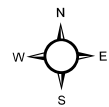
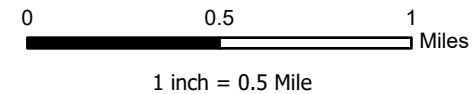
## FIGURES



#### LEGEND



Site Location



Project No: 024-599

Map By: JW

Date: 01/20/2025

**KLAUSNER 1 WELLHEAD  
GENERAL LOCATION MAP**  
PDC ENERGY  
NW 1/4 SE 1/4 SECTION 32  
T1N R62W, 6TH PM  
WELD COUNTY, COLORADO



1843 Sunlight Dr.  
Longmont, CO 80504  
303.378.4036

Figure

1

WH01@6	
11/8/2024	
Arsenic (mg/kg):	<b>6.82</b>
Barium (mg/kg):	<b>214</b>
Cadmium (mg/kg):	<b>0.436</b>
Lead (mg/kg):	<b>14.7</b>
Selenium (mg/kg):	<b>0.660</b>

WH01-W@4 (1.5) ● WH01-N@4 (2.0)  
 ● WH01-E@4 (1.9)  
 ● FLR01@4 (2.2)

#### LABEL LEGEND

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

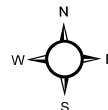
#### Legend

● Soil Sample    ● Screening Location

#### NOTES:

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

0      5      10  
 Feet  
 1 inch = 10 Feet



Project No: 024-599

Map By: JW

Date: 01/20/2025

**KLAUSNER 1 WELLHEAD**  
**SOIL SAMPLE AND FIELD SCREENING LOCATIONS**  
 PDC ENERGY  
 NW 1/4 SE 1/4 SECTION 32  
 T1N R62W, 6TH PM  
 WELD COUNTY, COLORADO



1843 Sunlight Drive  
 Longmont, CO 80504  
 303.378.4036

Figure

2

## **TABLES**

**TABLE 1**  
**FIELD DATA SUMMARY TABLE**  
**PDC 69175**  
**KLAUSNER 1 WELLHEAD, WELD COUNTY, COLORADO**  
**REM # 37555**

Sample ID	Sample Date	Depth (ft-bgs)	GPS Data		VOC Concentration (ppm)
			Latitude/Longitude		
WH01@6	11/8/2024	6	40.006170	-104.345779	2.4
FLR01@4	11/8/2024	4	40.006164	-104.345780	2.2
WH01-N@4	11/8/2024	4	40.006175	-104.345779	2.0
WH01-E@4	11/8/2024	4	40.006169	-104.345787	1.9
WH01-W@4	11/8/2024	4	40.006169	-104.345772	1.5

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  
PDC 69175  
KLAUSNER 1 WELLHEAD, WELD COUNTY, COLORADO  
REM # 37555

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	11/8/2024	6	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00145	<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  
PDC 69175  
KLAUSNER 1 WELLHEAD, WELD COUNTY, COLORADO  
REM # 37555

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	11/8/2024	6	<0.000304	<0.000334	<0.000493	<0.000468	<0.000585	<0.000437	0.00141	<0.000614	0.000639	<0.000286	<0.000627	0.00106	<0.00109	<0.00194

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**  
**PDC 69175**  
**KLAUSNER 1 WELLHEAD, WELD COUNTY, COLORADO**  
**REM # 37555**

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	11/8/2024	6	7.67	2.45	2.00	0.535

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  
PDC 69175  
KLAUSNER 1 WELLHEAD, WELD COUNTY, COLORADO  
REM # 37555

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	11/8/2024	6	6.82	214	0.436	<0.244*	16.6	14.7	15.2	0.660	<0.0844	198

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 reporting or minimum detection limit in excess of SSL

ft-bgs - feet below ground surface

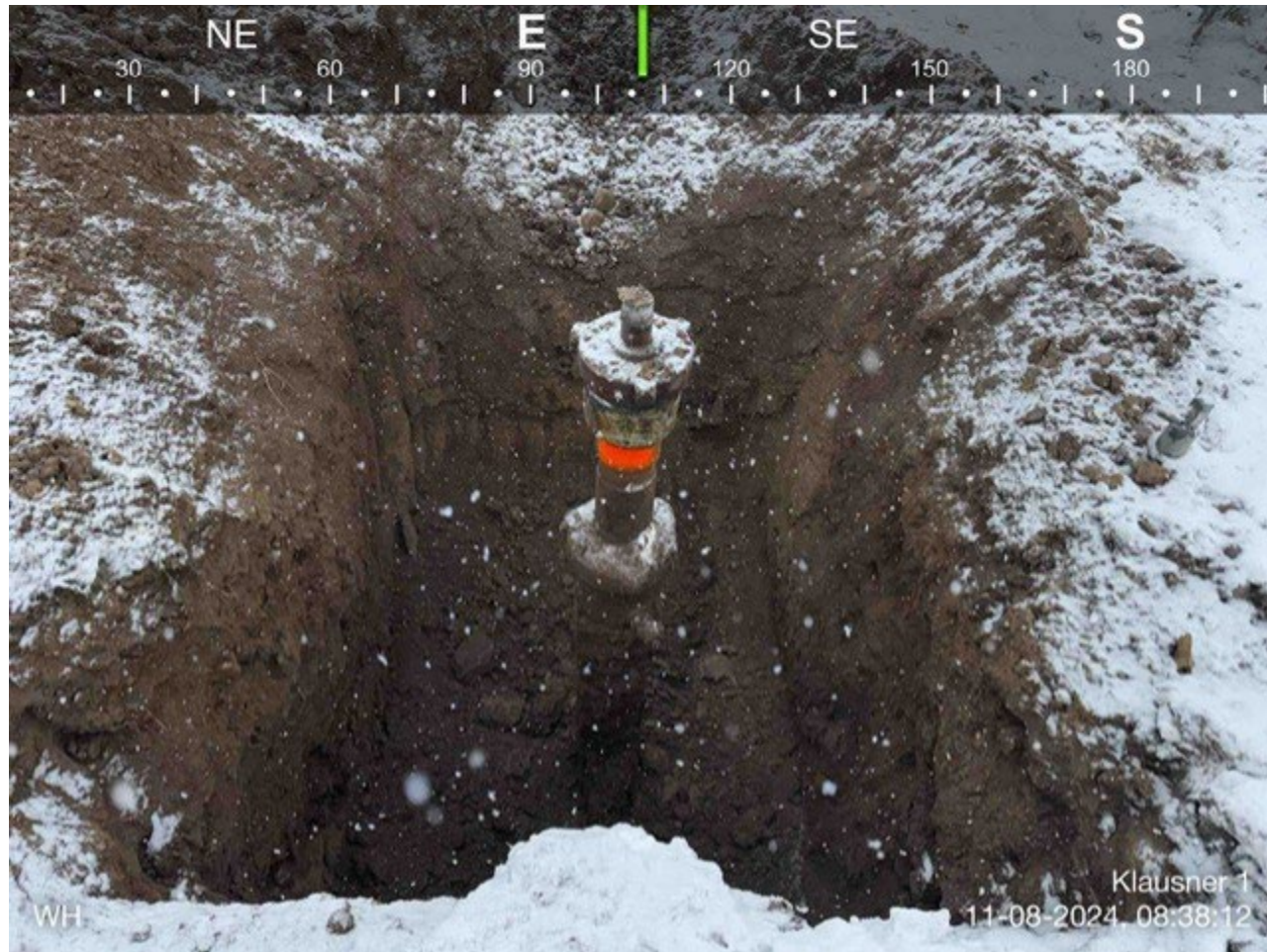
mg/kg - milligrams per kilogram

**ATTACHMENT A**  
**PHOTOGRAPHIC LOG**

# Klausner 1 Wellhead Photographic Log



## Klausner 1 Wellhead Photographic Log





# Klausner 1 Wellhead Photographic Log



**ATTACHMENT B**  
**FACILITY CLOSURE CHECKLISTS**

<h2 style="text-align: center;">Wellhead Closure Checklist</h2> <h3 style="text-align: center;">COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form</h3>							
Additional attachments (optional):		Pit Closure		Tank Battery Closure		Flowline Closure	Partially Buried Vault Closure
Site Name & COGCC Facility Number: Klausner 1, 240505		Date: 11/8/2024					Remediation Project #: 37555
Associated Wells: N/A		Age of Site: 1/26/1975 - spud date					Number of Photos Attached: 3
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple)						40.006170, -104.345780	
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)						Estimated Facility Size (acres): ~0.01	
Overall good							
USCS Soil Type: SM				Estimated Depth to Groundwater: Unknown as none encountered			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)							
None encountered or observed							
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)							
None encountered or observed							
Wellhead(s)							
Well API	05-123-08293						
Age	1/26/75 - spud date						
Condition of surface around wellhead	Good						
PID Readings	1.5 - 2.4 ppm						
Condition of subsurface (staining present)	Good						
PID Readings	2.4 ppm						
Sample taken? Location/Sample ID#	WH01@6						
Photo Number(s)	1-3						
Other observations regarding wellheads:							
Summary							
Was impacted soil identified?							
(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: 2.4 ppm				Total number of samples submitted to lab for analysis: 1			
If more than 10 cubic yards of impacted soil were observed:							
Vertical extent:				Estimated spill volume:			
Lateral extent:				Volume of soil removed:			
Is additional investigation required?							
Was groundwater encountered during the investigation?							
(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:							