

Wellhead Closure Checklist

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

Additional attachments (optional): <u> </u>		Pit Closure <u> </u>		Tank Battery Closure <u> </u>		Flowline Closure <u> </u>		Partially Buried Vault Closure <u> </u>	
Site Name & COGCC Facility Number: Shable #14-22		Date: 09/21/23					Remediation Project #: 30762		
Associated Wells: 05-123-28014		Age of Site: Years					Number of Photos Attached: 2		
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) 40.578668 / -104.523722						Estimated Facility Size (acres): <u> </u>			
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.) Good condition.									
USCS Soil Type: CL				Estimated Depth to Groundwater: Approx. 20-40'					
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	05-123-28014								
Age	Years								
Condition of surface around wellhead	Good - Per Crew								
PID Readings	WH-N: 3.2	WH-E: 4.1	WH-S: 4.4	WH-W: 5.1					
Condition of subsurface (staining present)	Good - No odor/no staining								
PID Readings	6.4	4.3	6.7	6.0	7.1				
Sample taken? Location/Sample ID#	WH-SS-01	WH-SS-02	WH-SS-03	WH-SS-04	WH-FS-01				
Photo Number(s)	See photolog								
Other observations regarding wellheads: Well casing cut/capped following assessment.									
Summary									
Was impacted soil identified? <input checked="" type="checkbox"/> No Yes - less than 10 cubic yards Yes - more than 10 cubic yards									
Total number of samples field screened: 9				Total number of samples collected: 9					
Highest PID Reading: 7.1				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:					
N/A									
Lateral extent:				Volume of soil removed:					
N/A									
Is additional investigation required?									
Was groundwater encountered during the investigation? <input checked="" type="checkbox"/> 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:					
N/A									
Free product observed? Yes No				Volume of groundwater removed post sampling:					
N/A									
Total number of samples collected:				Total Volume of groundwater removed:					
Total number of samples submitted to lab for analysis:									



FIGURES

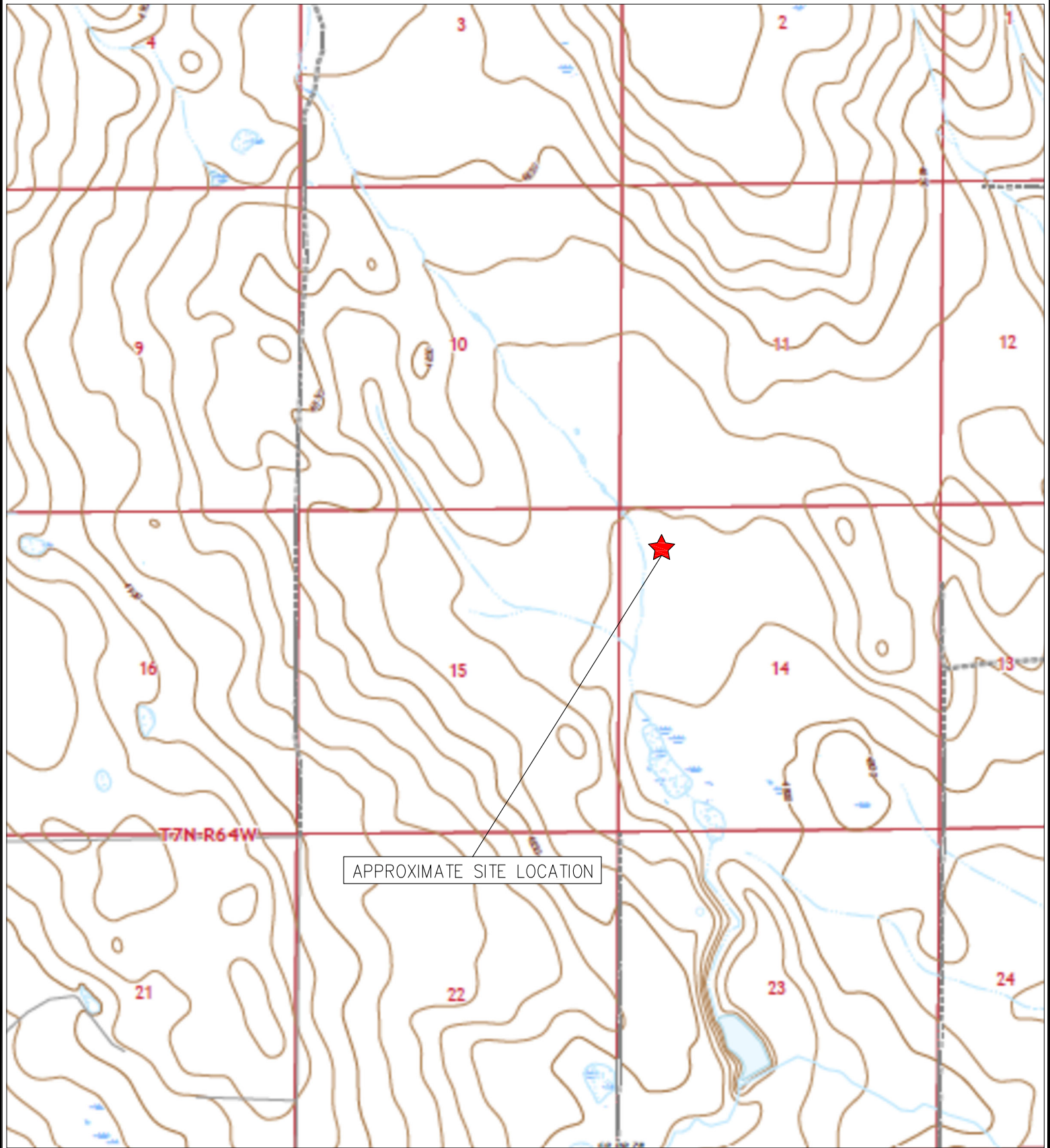
Figure 1: Topographic Site Location Map

Figure 2: Aerial Site Location Map

Figure 3: Soil Sampling Location Map

Figure 4: Soil Analytical Map

Figure 5: Metals in Soil Map



APPROXIMATE SITE LOCATION



TOPOGRAPHIC SITE LOCATION MAP
 SHABLE #14-22
 CLOSURE ASSESSMENT
 40.578650 / -104.523748
 NW¼ NW¼ SEC.14 T7N R64W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-28014
 REMEDIATION # 30762



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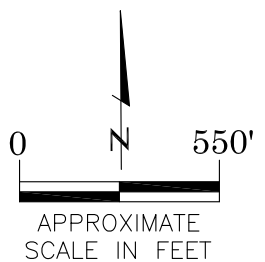
SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP,
 GALETON, CO QUADRANGLE 2022

FIGURE NO. 1



LEGEND

- FORMER SHABLE #14-22 WELLHEAD (PLUGGED AND ABANDONED)
- ASSOCIATED SEPARATOR
- APPROXIMATE FLOWLINE LOCATION



AERIAL SITE LOCATION MAP
 SHABLE #14-22
 CLOSURE ASSESSMENT
 40.578650 / -104.523748
 NW¼ NW¼ SEC.14 T7N R64W 6PM
 WELD COUNTY, COLORADO
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FIGURE NO.
2

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BB



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LEGEND

- — WELLHEAD ASSESSMENT BOUNDARIES
- SS-02 APPROXIMATE LOCATION OF SOIL SAMPLES FIELD SCREENED, ONLY, WITH PHOTOIONIZATION DETECTOR
- APPROXIMATE LOCATION OF SOIL SAMPLES SUBMITTED FOR LABORATORY ANALYSIS



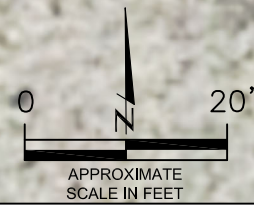
SOIL SAMPLING LOCATION MAP
SHABLE #14-22
CLOSURE ASSESSMENT
40.578650 / -104.523748
NW¼ NW¼ SEC.14 T7N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-28014
REMEDIAION # 30762

FIGURE NO.
3

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LEGEND

- WELLHEAD ASSESSMENT BOUNDARIES
- APPROXIMATE LOCATION OF SOIL SAMPLES FIELD SCREENED, ONLY, WITH PHOTOIONIZATION DETECTOR
- APPROXIMATE LOCATION OF SOIL SAMPLES SUBMITTED FOR LABORATORY ANALYSIS

PARAMETERS

SAMPLE LOCATION
 DATE
 DEPTH (FEET)
 B = BENZENE (mg/kg)
 T = TOLUENE (mg/kg)
 E = ETHYLBENZENE (mg/kg)
 X = TOTAL XYLENES (mg/kg)
 N = NAPHTHALENE (mg/kg)
 G = TPH-GRO (mg/kg)
 D = TPH-DRO (mg/kg)
 R = TPH-RRO (mg/kg)
 1,2,4-TMB = 1,2,4 TRIMETHYLBENZENE (mg/kg)
 1,3,5-TMB = 1,3,5 TRIMETHYLBENZENE (mg/kg)
 Brn= BORON (mg/L)
 EC = SPECIFIC CONDUCTANCE (mmhos/cm)
 SAR= SODIUM ADSORPTION RATIO
 pH = pH (pH UNITS)
 POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (mg/kg)

mg/kg = MILLIGRAMS PER KILOGRAM
 mg/L = MILLIGRAMS PER LITER
 mmhos/cm = MILLIMHOS PER CENTIMETER

BRL = BELOW REGULATORY LIMITS

TPH-GRO = TOTAL PETROLEUM HYDROCARBONS - GASOLINE RANGE ORGANICS
 TPH-DRO = TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS
 TPH-RRO = TOTAL PETROLEUM HYDROCARBONS - RESIDUAL RANGE ORGANICS

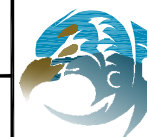
NOTES:
 VALUES PRESENTED IN **BOLD** EXCEED ECMC TABLE 915-1 REGULATORY LIMITS

ECMC = ENERGY & CARBON MANAGEMENT COMMISSION

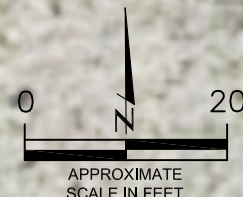
SOIL ANALYTICAL MAP
 SHABLE #14-22
 CLOSURE ASSESSMENT
 40.578650 / -104.523748
 NW¼ NW¼ SEC.14 T7N R64W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-28014
 REMEDIATION # 30762

FIGURE NO.
4

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BACKGROUND-01@2'
 09/21/23
 2'
 EC = 2.59
 SAR= 2.28

WH-FS-01@7'
 09/21/23
 7'
 EC = **4.35**
 SAR= **6.18**
 ALL OTHER VALUES BRL

BACKGROUND-01

WH-SS-01
 WH-SS-02
 WH-SS-03
 WH-SS-04
 WH-FS-01



LEGEND

- WELLHEAD ASSESSMENT BOUNDARIES
- APPROXIMATE LOCATION OF SOIL SAMPLES FIELD SCREENED, ONLY, WITH PHOTOIONIZATION DETECTOR
- APPROXIMATE LOCATION OF SOIL SAMPLES SUBMITTED FOR LABORATORY ANALYSIS

PARAMETERS

SAMPLE LOCATION
DATE SAMPLE COLLECTED
APPROXIMATE DEPTH
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)

mg/kg = MILLIGRAMS PER KILOGRAM

NA – NOT ANALYZED

NOTES:
VALUES PRESENTED WITH A LESS THAN SYMBOL (<) DID NOT CONTAIN CONCENTRATIONS AT/OR ABOVE LABORATORY REPORTING LIMITS AND/OR MINIMUM DETECTION LIMITS.

VALUES PRESENTED IN **BOLD** EXCEED ECMC TABLE 915-1 REGULATORY LIMITS.

*VALUES EXCEED ECMC TABLE 915-1 PROTECTION OF GROUNDWATER SOIL SCREENING LEVELS, ONLY.

**ACHIEVABLE PRACTICAL QUANTITATIVE LIMITS FOR HEXAVALENT CHROMIUM (Cr VI) IN SOILS IS IN THE RANGE OF 0.1 TO 1 mg/kg.

ELEVATED METALS ARE NATURALLY OCCURRING IN COLORADO. LOCAL CLEAN-UP LEVELS ARE 1.25*BACKGROUND WHERE APPLICABLE.

ECMC = ENERGY & CARBON MANAGEMENT COMMISSION

METALS IN SOIL MAP
SHABLE #14-22
CLOSURE ASSESSMENT
40.578650 / -104.523748
NW¼ NW¼ SEC.14 T7N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-28014
REMEDIAION # 30762

FIGURE NO.
5

DRAWN BY:
RS



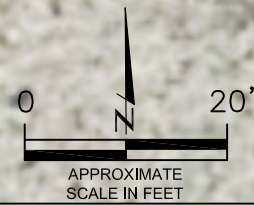
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BACKGROUND-01@2'
09/21/23
2'
Arsenic = 3.49
Barium = 331
Cadmium = NA
Chromium (VI) = NA
Copper = NA
Lead = NA
Nickel = NA
Selenium = 0.145
Silver = NA
Zinc = NA

WH-FS-01@7'
09/21/23
7'
Arsenic = 3.76
Barium = 130
Cadmium = 0.227
Chromium (VI) = <0.252**
Copper = 10.6
Lead = 10.1
Nickel = 10.6
Selenium = **0.298***
Silver = <0.0968
Zinc = <96.8

BACKGROUND-01

WH-SS-01
WH-SS-02
WH-SS-03
WH-SS-04
WH-FS-01





TABLES

Table 1: Photoionization Detector Reading Summary

Table 2: Soil Analytical Results Summary

TABLE 1
PHOTOIONIZATION DETECTOR READING SUMMARY
SHABLE #14-22
CLOSURE ASSESSMENT
40.578650 / -104.523748
NW¼ NW¼ SEC.14 T7N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-28014
REMEDIATION # 30762

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WH-FS-01 @ 7' (40.578650 / -104.523760)	09/21/23	7	7.1	Y
WH-SS-01 @ 6' (40.578677 / -104.523767)	09/21/23	6	6.4	N
WH-SS-02 @ 6' (40.578658 / -104.523736)	09/21/23	6	4.3	N
WH-SS-03 @ 6' (40.578638 / -104.523762)	09/21/23	6	6.7	N
WH-SS-04 @ 6' (40.578656 / -104.523791)	09/21/23	6	6.0	N
WH-N @ 0.5' (40.578701 / -104.523773)	09/21/23	0.5	3.2	N
WH-E @ 0.5' (40.578655 / -104.523689)	09/21/23	0.5	4.1	N
WH-S @ 0.5' (40.578618 / -104.523769)	09/21/23	0.5	4.4	N
WH-W @ 0.5' (40.578655 / -104.523840)	09/21/23	0.5	5.1	N
Background-01 @ 2' (40.578733 / -104.523695)	09/21/23	2	5.5	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector				



TABLE 2
SOIL ANALYTICAL RESULTS SUMMARY
SHABLE #14-22
CLOSURE ASSESSMENT
40.578650 / -104.523748
NW¼ NW¼ SEC.14 T7N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-28014
REMEDATION # 30762

Sample Location (Latitude / Longitude)		WH-FS-01 @ 7'		Background-01 @ 2'		
		(40.578650 / -104.523760)		(40.578733 / -104.523695)		
Sample Date		9/21/2023		9/21/2023		
Sample Depth		7		2		
PID Reading (ppm-v)		7.1		5.5		
Regulatory Limits						
Chemical of Concern	Units	ECMC Table 915-1 RSSLs	ECMC Table 915-1 GSSLs	Local Clean-Up Level		
VOCs						
Benzene	mg/kg	1.2	0.0026	--	<0.00200	NA
Toluene	mg/kg	490	0.69	--	<0.00200	NA
Ethylbenzene	mg/kg	5.8	0.78	--	<0.00200	NA
Total Xylenes	mg/kg	58	9.9	--	<0.00200	NA
Naphthalene	mg/kg	2	0.0038	--	<0.00380	NA
1,2,4-Trimethylbenzene	mg/kg	30	0.0081	--	<0.00200	NA
1,3,5-Trimethylbenzene	mg/kg	27	0.0087	--	<0.00200	NA
TOTAL PETROLEUM HYDROCARBONS						
TPH-GRO	mg/kg	500	--	--	<0.200	NA
TPH-DRO	mg/kg	500	--	--	<25.0	NA
TPH-RRO	mg/kg	500	--	--	<100	NA
POLYCYCLIC AROMATIC HYDROCARBONS						
1-Methyl-naphthalene	mg/kg	18	0.006	--	<0.002	NA
2-Methyl-naphthalene	mg/kg	24	0.019	--	<0.002	NA
Acenaphthene	mg/kg	360	0.55	--	<0.020	NA
Anthracene	mg/kg	1800	5.8	--	<0.020	NA
Benzo(a)-anthracene	mg/kg	1.1	0.011	--	<0.005	NA
Benzo(a)-pyrene	mg/kg	0.11	0.24	--	<0.020	NA
Benzo(b)-fluoranthene	mg/kg	1.1	0.3	--	<0.020	NA
Benzo(k)-fluoranthene	mg/kg	11	2.9	--	<0.020	NA
Chrysene	mg/kg	110	9	--	<0.020	NA
Dibenzo(a,h)-anthracene	mg/kg	0.11	0.096	--	<0.020	NA
Fluoranthene	mg/kg	240	8.9	--	<0.020	NA
Fluorene	mg/kg	240	0.54	--	<0.020	NA
Indeno(1,2,3-cd)-pyrene	mg/kg	1.1	0.98	--	<0.020	NA
Pyrene	mg/kg	180	1.3	--	<0.020	NA
SOIL SUITABILITY (Inorganics)						
Boron	mg/L	2	--	--	0.764	NA
pH	standard unit	6-8.3	--	--	7.97	NA
Sodium Adsorption Ratio (SAR)	--	<6	--	--	6.18	2.28
Specific Conductance (EC)	mmhos/cm	<4	--	--	4.35	2.59
METALS						
Arsenic	mg/kg	0.68	0.29	4.36	3.76	3.49
Barium	mg/kg	15000	82	414	130	331
Cadmium	mg/kg	71	0.38	--	0.227	NA
Copper	mg/kg	3100	46	--	10.6	NA
Lead	mg/kg	400	14	--	10.1	NA
Nickel	mg/kg	1500	26	--	10.6	NA
Selenium	mg/kg	390	0.26	--	0.298*	0.145
Silver	mg/kg	390	0.8	--	<0.0968	NA
Zinc	mg/kg	23000	370	--	<96.8	NA
Hexavalent Chromium	mg/kg	0.3**	0.00067**	0.1 to 1.0**	<0.252**	NA
ECMC = Energy & Carbon Management Commission		NA - Not Analyzed		VOCs - Volatile Organic Compounds		
mg/kg = milligrams per kilogram						
mmhos/cm = millimhos per centimeter		RSSLs = Residential Soil Screening Levels				
PID = Photoionization Detector		GSSLs = Protection of Groundwater Soil Screening Levels				
ppm-v = parts per million by volume		TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics				
mg/L = milligrams per liter		TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics				
SAR = Sodium Adsorption Ratio		TPH-RRO = Total Petroleum Hydrocarbons - Residual Range Organics				
Notes: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit and/or minimum detection limit						
Values presented in BOLD exceed ECMC Table 915-1 Regulatory Limits. Values presented with asterisk (*) exceed ECMC Table 915-1 GSSLs, only.						
**Achievable practical quantitative limits for Hexavalent Chromium in soils is in the range of 0.1 to 1 mg/kg.						
Elevated metals are naturally occurring in Colorado. The Local Clean-up Levels are 1.25*Background where applicable.						



ATTACHMENT A

Photo Log

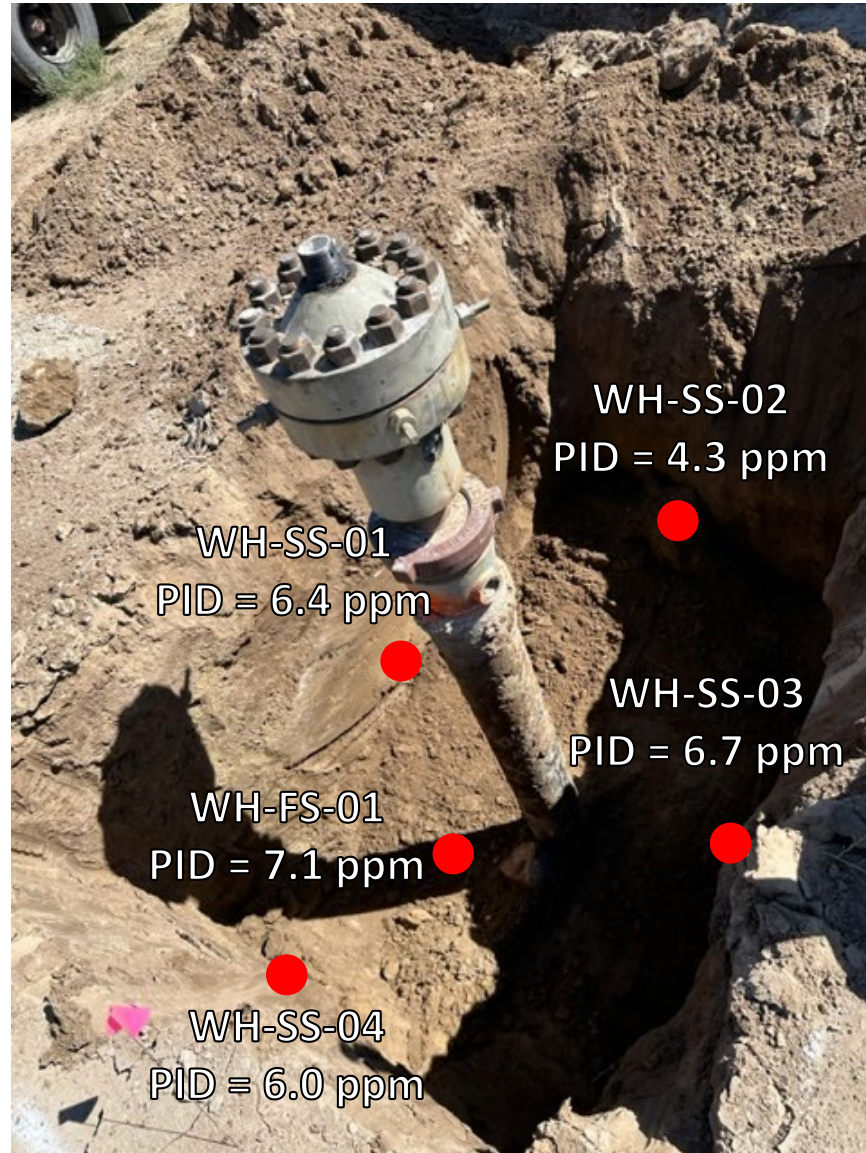
Shable #14-22
API # 05-123-28014
Remediation # 30762

Closure Assessment

September 2023



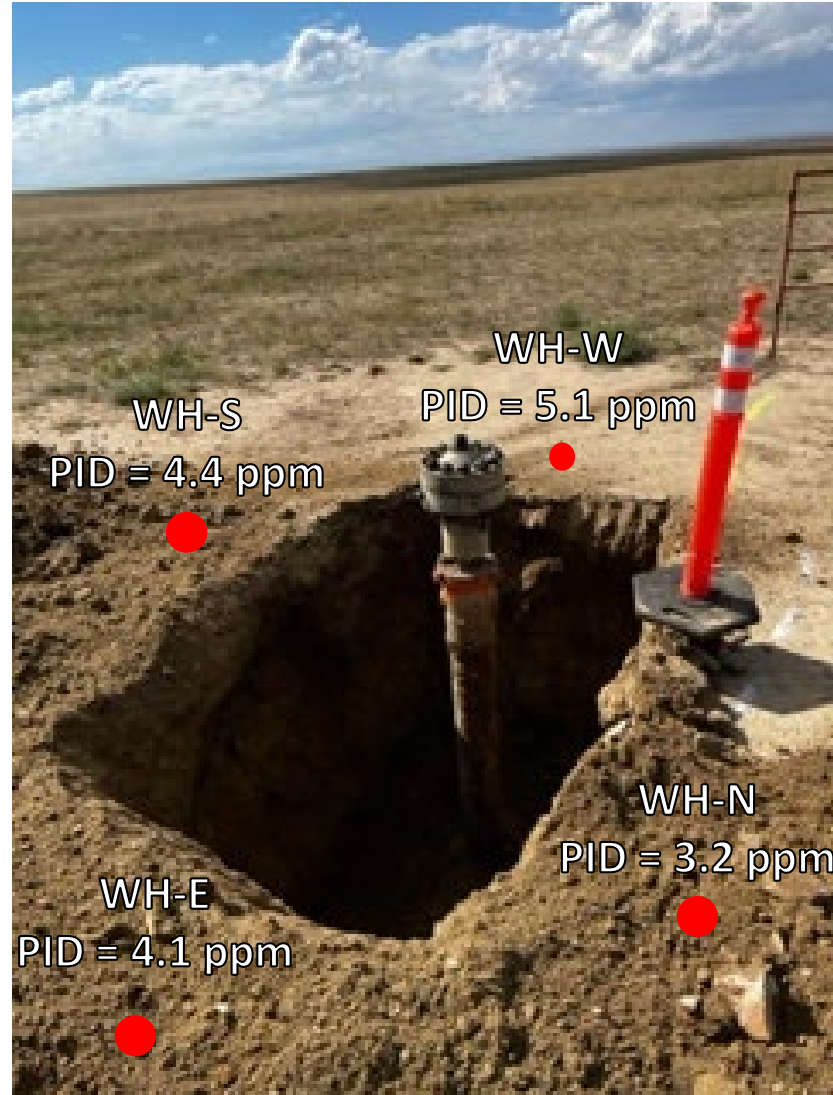
Wellhead Excavation – 09/21/23



Looking Northeast

No petroleum hydrocarbon staining or odor observed

Wellhead Surface – 09/21/23



Looking Southwest

Site in good condition – no petroleum hydrocarbon staining or odor
Observed on surface around wellhead