

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: Huntsman G #13-9		Date: 11/17/23					Remediation Project #: 31082	
Associated Wells: 05-123-16321		Age of Site: years					Number of Photos Attached: 6	
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) 40.310550 / -104.604642							Estimated Facility Size (acres): <u> </u>	
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.) Good condition								
USCS Soil Type: Silty SAND					Estimated Depth to Groundwater: ~10-20'			
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	05-123-16321							
Age	years							
Condition of surface around wellhead	Good - No odor/no staining							
PID Readings	WH-N: 0.8	WH-E: 0.6	WH-S: 1.1	WH-W: 1.0				
Condition of subsurface (staining present)	Good - No odor/no staining							
PID Readings	1.5	1.8	2.2	1.7	2.4			
Sample taken? Location/Sample ID#	WH-SS-01	WH-SS-02	WH-SS-03	WH-SS-04	WH-FS-01			
Photo Number(s)	See photo log							
Other observations regarding wellheads: Well casing cut/capped following assessment								
Summary								
Was impacted soil identified? (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: 2.4				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:				
N/A								
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:								



FIGURES

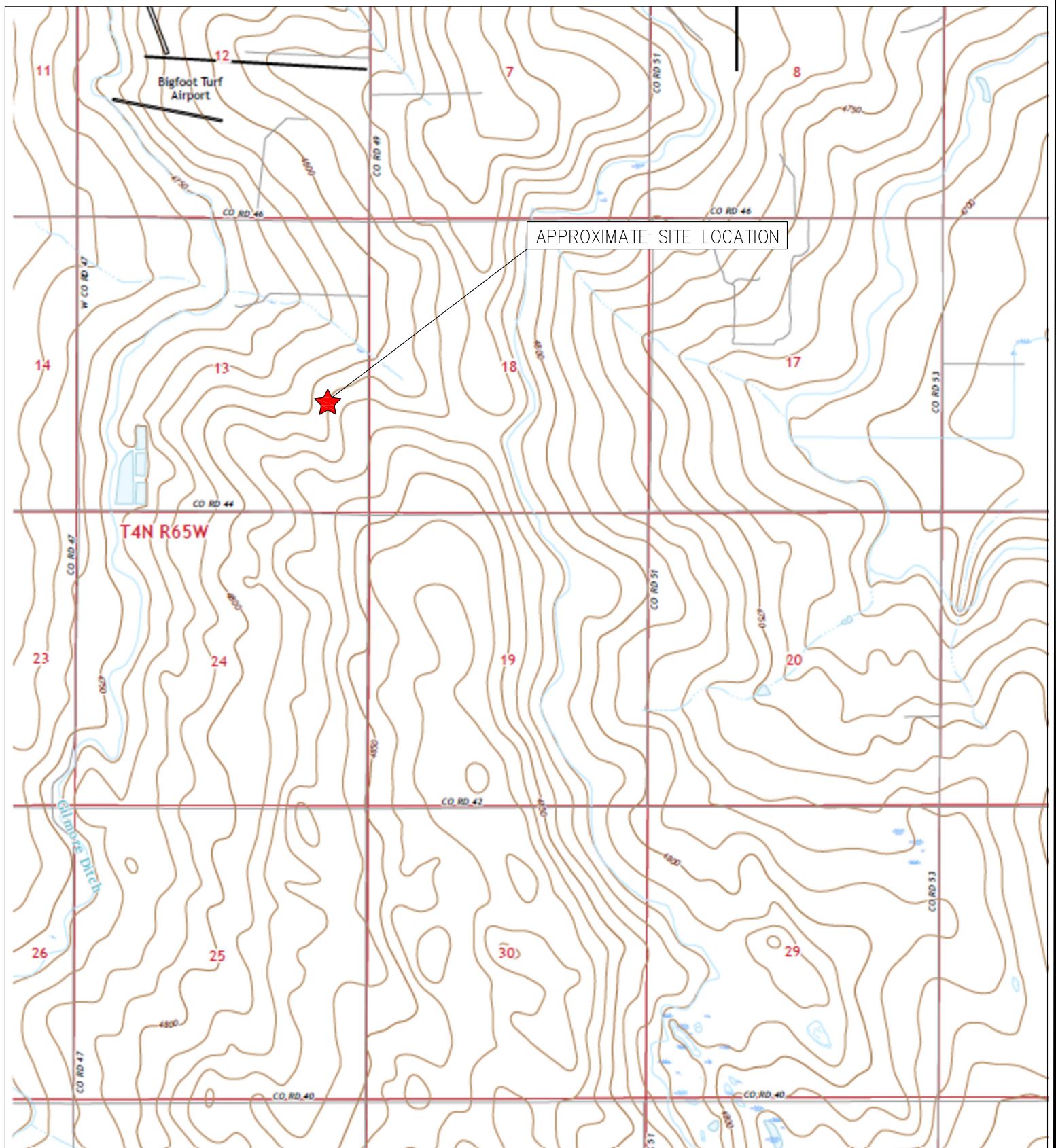
Figure 1: Topographic Site Location Map

Figure 2: Aerial Site Location Map

Figure 3: Sample Location Map

Figure 4: Soil Analytical Map

Figure 5: Metals in Soil Map



TOPOGRAPHIC SITE LOCATION MAP
 HUNTSMAN G #13-9
 CLOSURE ASSESSMENT
 40.310550 / -104.604642
 NE¼ SE¼ SEC.13 T4N R65W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-16321
 REMEDIATION # 31082



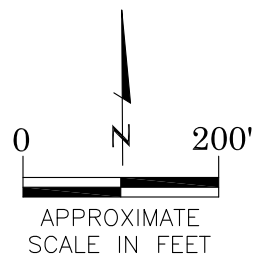
EAGLE
 ENVIRONMENTAL
 CONSULTING, LLC

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 Ph: 303-433-0479 • F: 303-325-5449



LEGEND

- FORMER HUNTSMAN G #13-9 WELLHEAD (PLUGGED AND ABANDONED)
- ASSOCIATED SEPARATOR
- APPROXIMATE FLOWLINE LOCATION



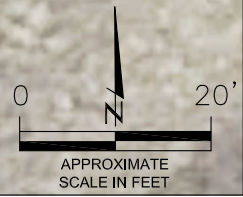
AERIAL SITE LOCATION MAP
HUNTSMAN G #13-9
CLOSURE ASSESSMENT
40.310550 / -104.604642
NE¼ SE¼ SEC.13 T4N R65W 6PM
WELD COUNTY, COLORADO
API # 05-123-16321
REMEDIAL # 31082

FIGURE NO.
2

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LEGEND

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

SAMPLE LOCATION MAP
 HUNTSMAN G #13-9
 CLOSURE ASSESSMENT
 40.310550 / -104.604642
 NE¼ SE¼ SEC.13 T4N R6SW 6PM
 WELD COUNTY, COLORADO
 API # 05-123-16321
 REMEDIATION # 31082

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

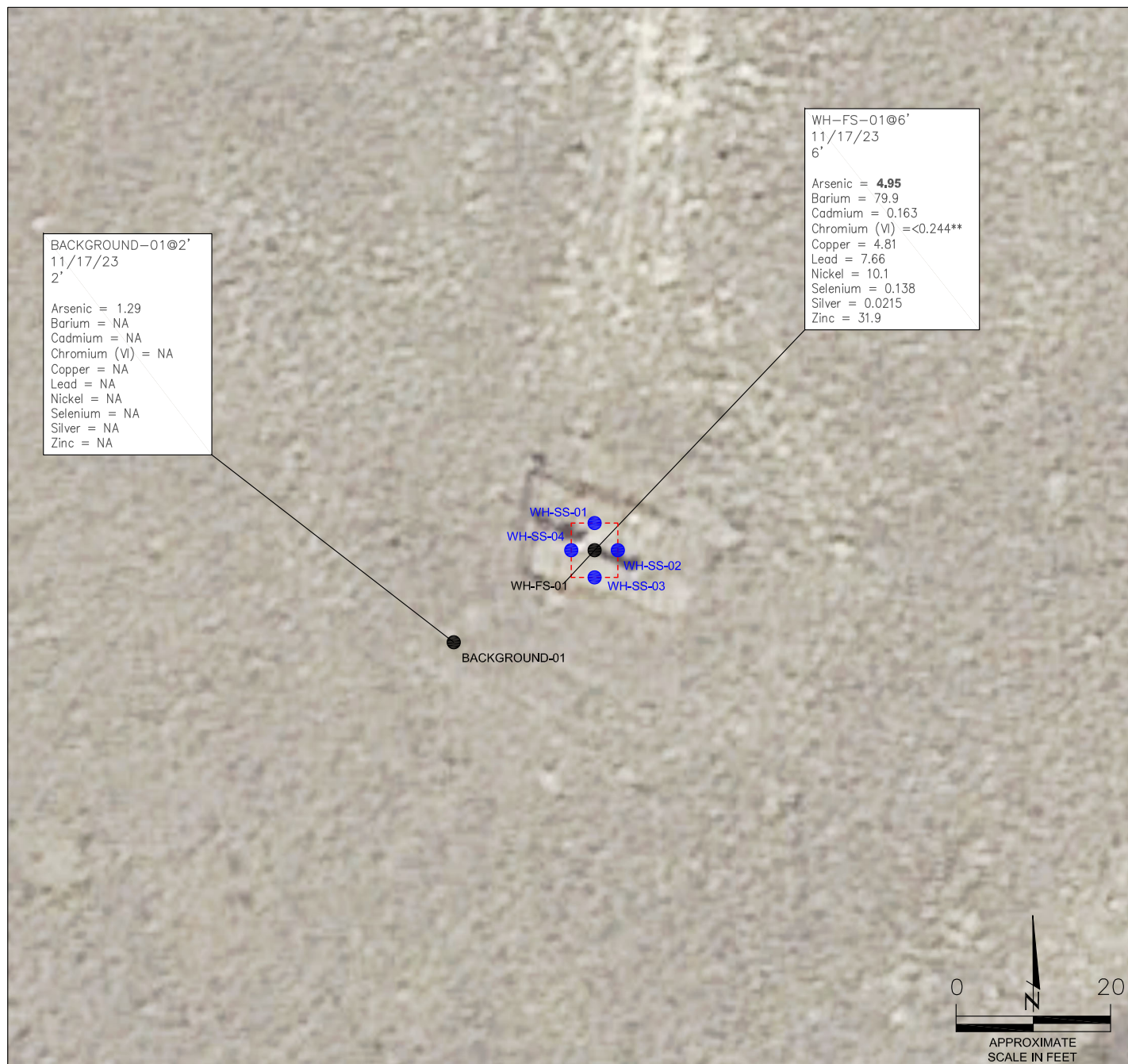
SOIL ANALYTICAL MAP
HUNTSMAN G #13-9
CLOSURE ASSESSMENT
40.310550 / -104.604642
NE¼ SE¼ SEC.13 T4N R65W 6PM
WELD COUNTY, COLORADO
API # 05-123-16321
REMEDIAL # 31082

FIGURE NO.
4

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LEGEND

- WELLHEAD ASSESSMENT BOUNDARIES
- SS-02 APPROXIMATE LOCATION OF SOIL SAMPLES FIELD SCREENED, ONLY, WITH PHOTOIONIZATION DETECTOR
- SS-02 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.

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

VALUES PRESENTED IN **BOLD** EXCEED ECMC TABLE 915-1 REGULATORY LIMITS AND APPLICABLE LOCAL CLEAN-UP LEVELS.

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

ECMC = ENERGY & CARBON MANAGEMENT COMMISSION

METALS IN SOIL MAP
HUNTSMAN G #13-9
CLOSURE ASSESSMENT
40.310550 / -104.604642
NE¼ SE¼ SEC.13 T4N R65W 6PM
WELD COUNTY, COLORADO
API # 05-123-16321
REMEDIAION # 31082

FIGURE NO.
5

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TABLES

Table 1: Photoionization Detector Reading Summary

Table 2: Soil Analytical Results Summary

TABLE 1
PHOTOIONIZATION DETECTOR READING SUMMARY
HUNTSMAN G #13-9
CLOSURE ASSESSMENT
40.310550 / -104.604642
NE¼ SE¼ SEC.13 T4N R65W 6PM
WELD COUNTY, COLORADO
API # 05-123-16321
REMEDIALTION # 31082

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WH-FS-01 @ 6' (40.310571 / -104.604668)	11/17/23	6	2.4	Y
WH-SS-01 @ 5' (40.310579 / -104.604668)	11/17/23	5	1.5	N
WH-SS-02 @ 5' (40.310571 / -104.604658)	11/17/23	5	1.8	N
WH-SS-03 @ 5' (40.310561 / -104.604668)	11/17/23	5	2.2	N
WH-SS-04 @ 5' (40.310571 / -104.604677)	11/17/23	5	1.7	N
WH-N @ 0.5' (40.310590 / -104.604668)	11/17/23	0.5	0.8	N
WH-E @ 0.5' (40.310571 / -104.604641)	11/17/23	0.5	0.6	N
WH-S @ 0.5' (40.310552 / -104.604667)	11/17/23	0.5	1.1	N
WH-W @ 0.5' (40.310570 / -104.604692)	11/17/23	0.5	1.0	N
Background-01 @ 2' (40.310539 / -104.604730)	11/17/23	2	0.3	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector				

TABLE 2
SOIL ANALYTICAL RESULTS SUMMARY
HUNTSMAN G #13-9
CLOSURE ASSESSMENT
40.310550 / -104.604642
NE¼ SEC.13 T4N R65W 6PM
WELD COUNTY, COLORADO
API # 05-123-16321
REMEDATION # 31082

Sample Location				WH-FS-01 @ 6'		Background-01 @ 2'	
(Latitude / Longitude)				(40.310571 / -104.604668)		(40.310539 / -104.604730)	
Sample Date				11/17/2023		11/17/2023	
Sample Depth				6'		2'	
PID Reading (ppm-v)				2.4		0.3	
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	--	--	0.133	NA	
pH	standard unit	6-8.3	--	--	8.41	8.33	
Sodium Adsorption Ratio (SAR)	--	<6	--	--	2.54	NA	
Specific Conductance (EC)	mmhos/cm	<4	--	--	0.402	NA	
METALS							
Arsenic	mg/kg	0.68	0.29	1.61	4.95	1.29	
Barium	mg/kg	15000	82	--	79.9	NA	
Cadmium	mg/kg	71	0.38	--	0.163	NA	
Copper	mg/kg	3100	46	--	4.81	NA	
Lead	mg/kg	400	14	--	7.66	NA	
Nickel	mg/kg	1500	26	--	10.1	NA	
Selenium	mg/kg	390	0.26	--	0.138	NA	
Silver	mg/kg	390	0.8	--	0.0215	NA	
Zinc	mg/kg	23000	370	--	31.9	NA	
Hexavalent Chromium	mg/kg	0.3**	0.00067**	0.1 to 1.0**	<0.244**	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.							
Elevated metals are naturally occurring in Colorado. Local Clean-up Levels are 1.25*Background concentrations where applicable.							
Values presented in BOLD exceed ECMC Table 915-1 Regulatory Limits and applicable Local Clean-up Levels.							
**Achievable practical quantitative limits for Hexavalent Chromium in soils is in the range of 0.1 to 1 mg/kg.							



ATTACHMENT A

Photo Log

Huntsman G #13-9

API # 05-123-16321

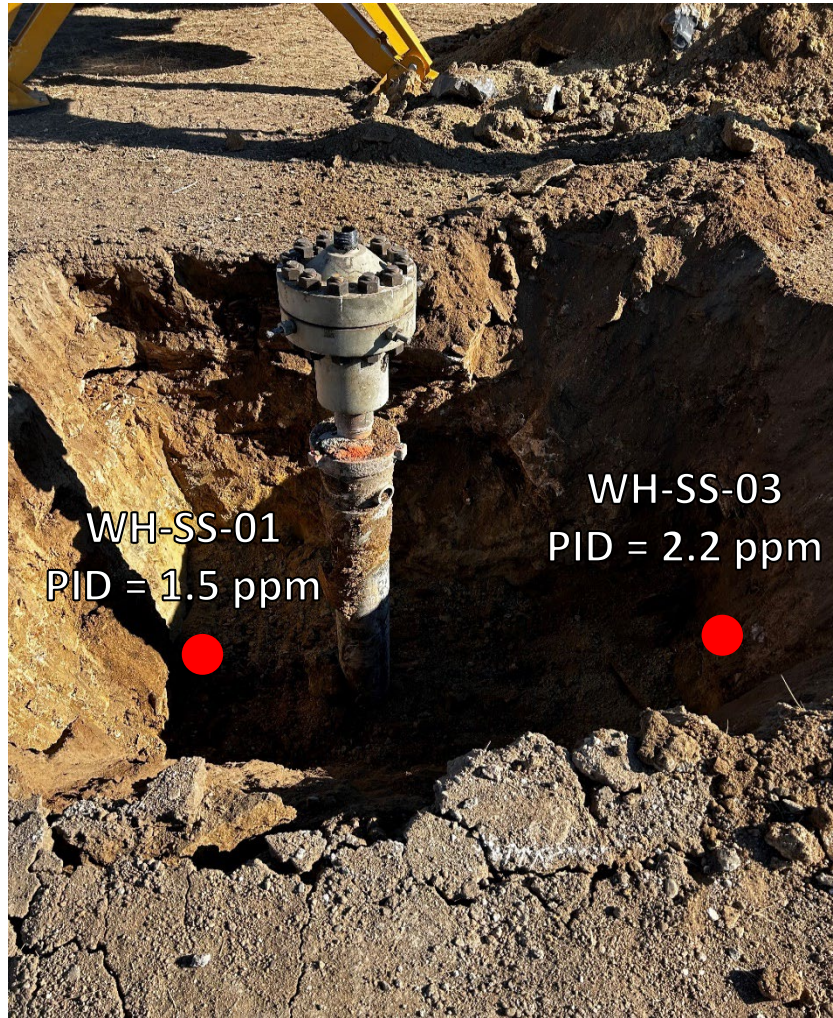
Remediation # 31082

Closure Assessment

November 2023

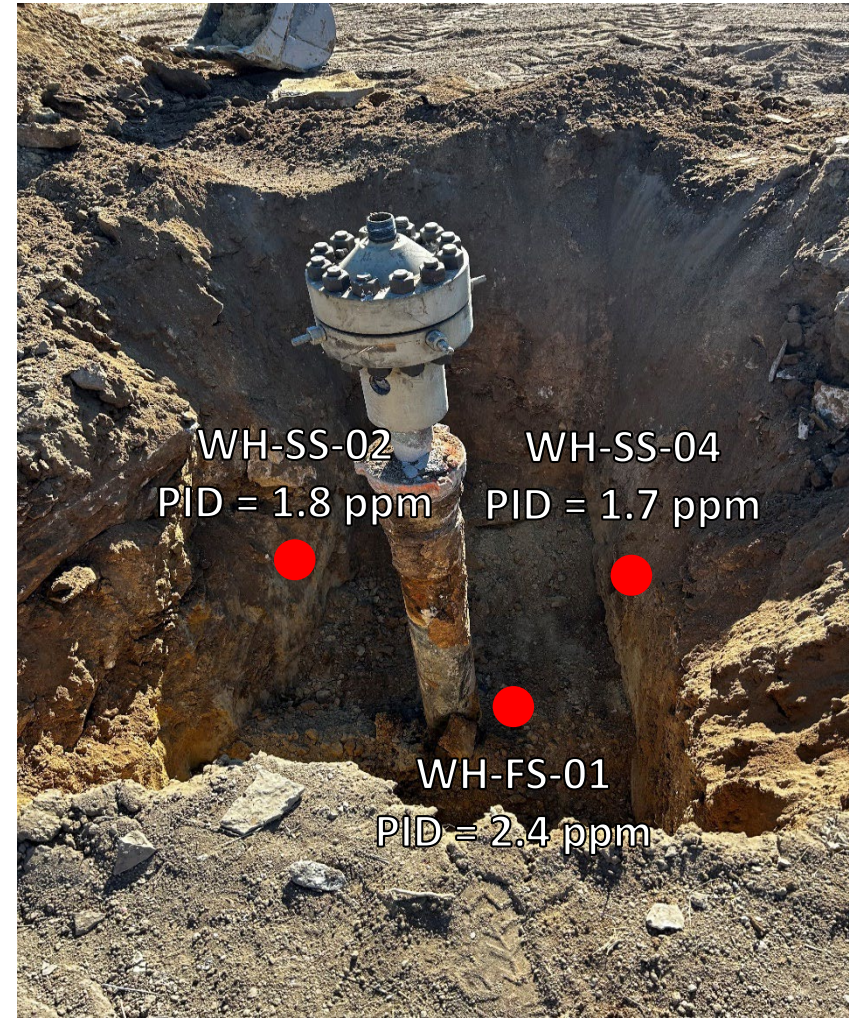


Wellhead Excavation – 11/17/23



Looking east

No petroleum hydrocarbon staining or odor observed



Looking south

No petroleum hydrocarbon staining or odor observed

Wellhead Surface – 11/17/23



Looking east

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



Looking north

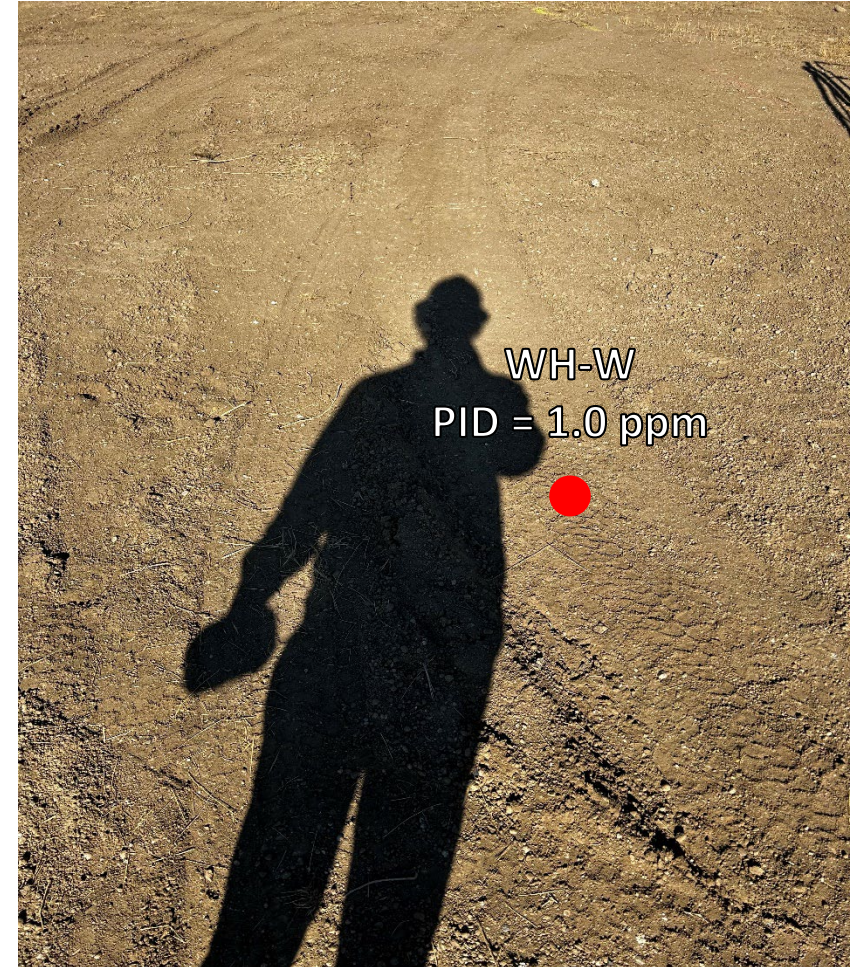
Site in good condition – no petroleum hydrocarbon staining or odor
Observed on surface around wellhead

Wellhead Surface – 11/17/23



Looking east

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



Looking north

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