

## Tank Battery Closure Checklist

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

Additional attachments (optional):		Pit Closure --	Wellhead Closure 4-18-22 & 6-1-22	Flowline Closure 5-31-22 - 6-2-22	Partially Buried Vault Closure 5-31-22
Site Name & COGCC Facility Number: HSR Guttersen T3N-R64W-S1 Tank Battery, Loc ID 330438		Date: 5-31-22		Remediation Project #: 330438	
Associated Wells: (2) 05-123-19119, 05-123-19132		Age of Site: years		Number of Photos Attached: 6	
Location: (GPS coordinates of southeaster berm) 40.246725 / -104.503423				Estimated Facility Size (acres):	

General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)

Good condition

USCS Soil Type: SC

Estimated Depth to Groundwater: ~30-50'

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	Crude								
Size (barrels)	300								
Age	years								
Construction Material	Steel								
Tank type (AST/DRV, etc.)	AST								
Visual Integrity of Tank	Good - per crew								
Condition of tank footprint	Good - no staining, no odor								
PID Readings	--								
Soil impacts present at valves or hatches?	None observed								
PID Readings	14.3								
Sample taken? Location/ Sample ID#	TB-SS-01								
Photo Number(s)	See photo log								

Other observations regarding tanks:

#### Separators

Separator size	--								
Vertical or Horizontal	Horizontal								
Age	years								
Soil impacts	None observed								
PID Readings	TB-SS-02	TB-SS-03							
Sample taken? Location/ Sample ID#	14.7	2.9							
Photo Number(s)	See photo log								

Other observations regarding separators

#### Third Party Equipment

Type	Meter House								
Age	years								

Third Party	DCP								
Removal Date	TBD								
Sample taken?	TB-SS-05								
PID Readings	2.7								
Photo Number(s)	See photo log								

**Other Facility Equipment**

Equipment type	VOC Flare	Dumpline		
Equipment Condition	Good - per crew	Good		
Age	years	years		
Soil impacts	None observed	None observed		
PID Readings	2.5	2.6		
Sample taken?	TB-SS-04	TB-SS-06		
Photo Number(s)	See photo log			

Other observations regarding other facility or third party equipment:

**Summary**

Was impacted soil identified?	
<input checked="" type="radio"/> No	Yes - less than 10 cubic yards
Total number of samples field screened: 6	
Total number of samples collected: 6	
Highest PID Reading: 14.7	
Total number of samples submitted to lab for analysis: 2	
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?	
<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:	

**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 4-18-22 & 6-1-22		Flowline Closure 5-31-22 - 6-2-22		Tank Battery Closure 5-31-22
Site Name & COGCC Facility Number: HSR Guttersen T3N-R64W-S1 Tank Battery, Loc ID 330438		Date: 5-31-22		Remediation Project #: 22528				
Associated Wells: (2) 05-123-19119, 05-123-19132		Age of Site: years		Number of Photos Attached: 2				
Location: (GPS coordinates of vault or southeastern tank berm for multiple) 40.246725 / -104.503423						Estimated Facility Size (acres):		

General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)

Good condition

USCS Soil Type: SC

Estimated Depth to Groundwater: ~30-50'

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								
Age	years								
Construction Material	Concrete								
Visual Integrity of Tank	Good - per crew								
Condition of tank contents	Good - no staining, no odor								
PID Readings	--								
Condition of Access Lines	Good								
PID Readings	4.9	3.9	4.1	4.6	4.5				
Sample taken? Location/Sample ID#	WV-SS-01	WV-SS-02	WV-SS-03	WV-SS-04	WV-FS-01				
Photo Number(s)	See photo log								

Other observations regarding partially buried vessels:

#### 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: 4.6		Total number of samples submitted to lab for analysis: 2		
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?		N/A		
Was groundwater encountered during the investigation?				
<input checked="" type="radio"/> No		Yes - not impacted 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**

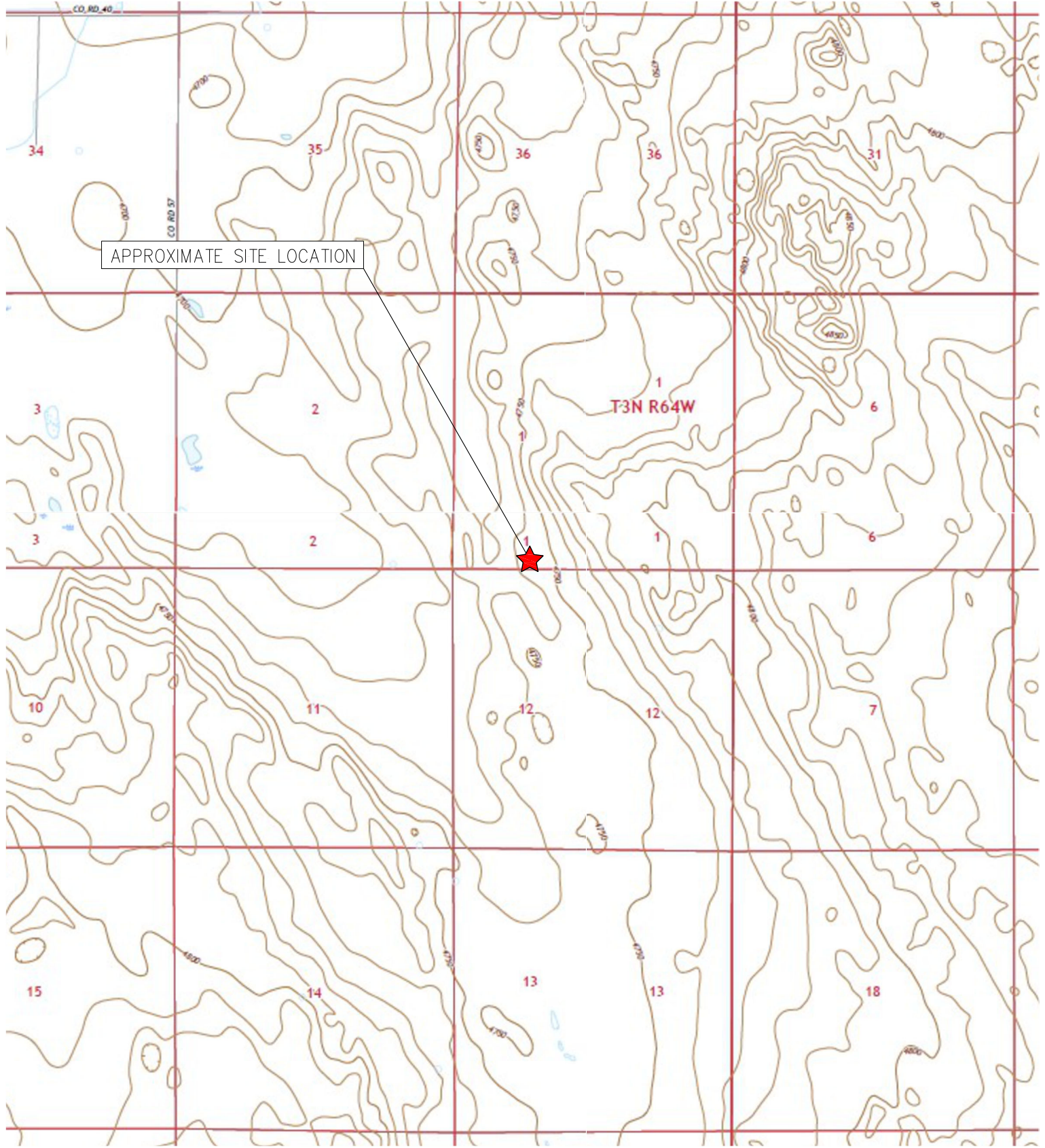
**Figure 1: Topographic Site Location Map**

**Figure 2: Aerial Site Location Map**

**Figure 3: Soil Analytical Map**

**Figure 4: Polycyclic Aromatic Hydrocarbons Map**

**Figure 5: Metals in Soil Map**



APPROXIMATE SITE LOCATION

T3N R64W



TOPOGRAPHIC SITE LOCATION MAP  
 HSR-GUTTERSEN T3N-R64W-S1 TANK BATTERY  
 CLOSURE ASSESSMENT  
 40.246725 / -104.503423  
 SW¼ SW¼ SEC.1 T3N R64W 6PM  
 WELD COUNTY, COLORADO  
 LOCATION ID 330438  
 REMEDIATION # 22528



**EAGLE**  
 ENVIRONMENTAL  
 CONSULTING, LLC

8000 W 44th Ave, Wheat Ridge, CO 80033  
 Ph: 303-433-0479 • F: 303-325-5449

SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAPS,  
 HARDIN, KLUG RANCH, VALLEY VIEW SCHOOL,  
 AND TAMPA, CO  
 QUADRANGLES 2022

FIGURE NO. 1

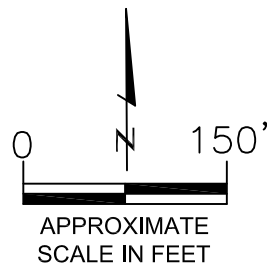


**LEGEND**

 FORMER HSR GUTTERSEN T3N-R64W-S1 TANK BATTERY (DECOMMISSIONED)

 APPROXIMATE WATER VAULT LOCATION (REMOVED)

 SEPARATOR CONTAINMENT AREA (DECOMMISSIONED)



AERIAL SITE LOCATION MAP  
 HSR-GUTTERSEN T3N-R64W-S1 TANK BATTERY  
 CLOSURE ASSESSMENT  
 40.246725 / -104.503423  
 SW¼ SW¼ SEC.1 T3N R64W 6PM  
 WELD COUNTY, COLORADO  
 LOCATION ID 330438  
 REMEDIATION # 22528

FIGURE NO.

2

DRAWN BY:

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 CONSULTING, LLC  
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**LEGEND**

- VAULT 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)
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)

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

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

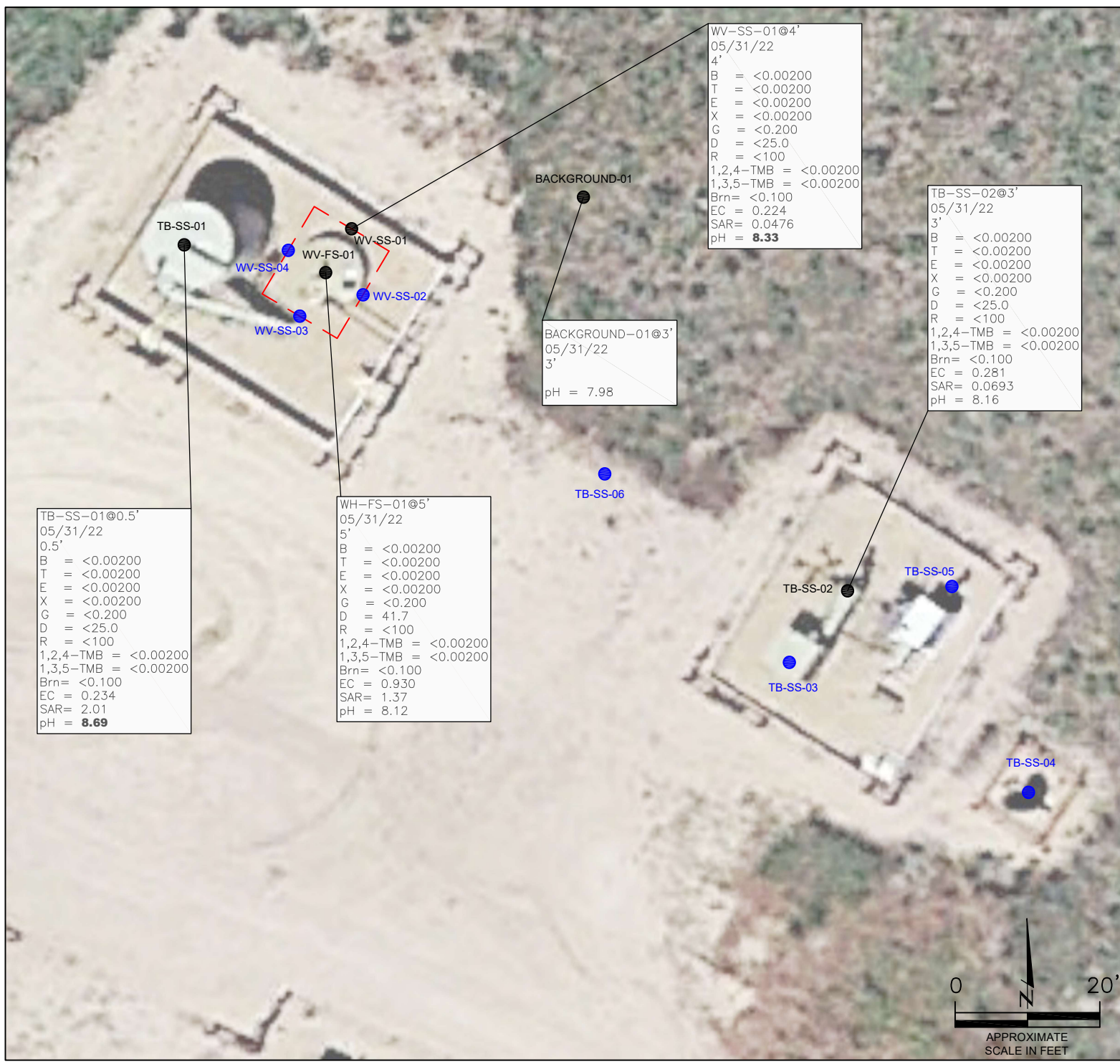
**NOTES:**  
 VALUES PRESENTED WITH A LESS THAN SYMBOL (<) DID NOT CONTAIN CONCENTRATIONS AT OR ABOVE LABORATORY DETECTION LIMITS

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

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION

SOIL ANALYTICAL MAP  
 HSR GUTTERSEN T3N-R64W-S1 TANK BATTERY  
 CLOSURE ASSESSMENT  
 40.246725 / -104.503423  
 SW¼ SW¼ SEC.1 T3N R64W 6PM  
 WELD COUNTY, COLORADO  
 LOCATION ID 330438  
 REMEDIATION # 22528

FIGURE NO.  
3  
 DRAWN BY:  
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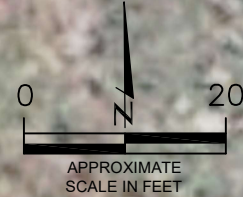
WV-SS-01@4'  
 05/31/22  
 4'  
 B = <0.00200  
 T = <0.00200  
 E = <0.00200  
 X = <0.00200  
 G = <0.200  
 D = <25.0  
 R = <100  
 1,2,4-TMB = <0.00200  
 1,3,5-TMB = <0.00200  
 Brn = <0.100  
 EC = 0.224  
 SAR = 0.0476  
 pH = **8.33**

TB-SS-02@3'  
 05/31/22  
 3'  
 B = <0.00200  
 T = <0.00200  
 E = <0.00200  
 X = <0.00200  
 G = <0.200  
 D = <25.0  
 R = <100  
 1,2,4-TMB = <0.00200  
 1,3,5-TMB = <0.00200  
 Brn = <0.100  
 EC = 0.281  
 SAR = 0.0693  
 pH = 8.16

BACKGROUND-01@3'  
 05/31/22  
 3'  
 pH = 7.98

TB-SS-01@0.5'  
 05/31/22  
 0.5'  
 B = <0.00200  
 T = <0.00200  
 E = <0.00200  
 X = <0.00200  
 G = <0.200  
 D = <25.0  
 R = <100  
 1,2,4-TMB = <0.00200  
 1,3,5-TMB = <0.00200  
 Brn = <0.100  
 EC = 0.234  
 SAR = 2.01  
 pH = **8.69**

WH-FS-01@5'  
 05/31/22  
 5'  
 B = <0.00200  
 T = <0.00200  
 E = <0.00200  
 X = <0.00200  
 G = <0.200  
 D = 41.7  
 R = <100  
 1,2,4-TMB = <0.00200  
 1,3,5-TMB = <0.00200  
 Brn = <0.100  
 EC = 0.930  
 SAR = 1.37  
 pH = 8.12



LEGEND

- VAULT 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  
 POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

NOTE:  
 CONCENTRATIONS PRESENTED IN mg/kg

mg/kg = MILLIGRAMS PER KILOGRAM

ND = NON-DETECT

NOTE:  
 VALUES PRESENTED WITH A LESS THAN SYMBOL (<) DID NOT CONTAIN CONCENTRATIONS AT OR ABOVE LABORATORY DETECTION LIMITS

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

VALUES PRESENTED WITH AN ASTERISK (\*) EXCEED COGCC TABLE 915-1 GROUNDWATER SOIL SCREENING LEVELS, ONLY.

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION

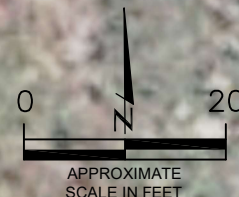
POLYCYCLIC AROMATIC HYDROCARBONS MAP  
 HSR-GUTTERSEN T3N-R64W-S1 TANK BATTERY  
 CLOSURE ASSESSMENT  
 40.246725 / -104.503423  
 SW¼ SW¼ SEC.1 T3N R64W 6PM  
 WELD COUNTY, COLORADO  
 LOCATION ID 330438  
 REMEDIATION # 22528

FIGURE NO.  
 4

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 CONSULTING, LLC  
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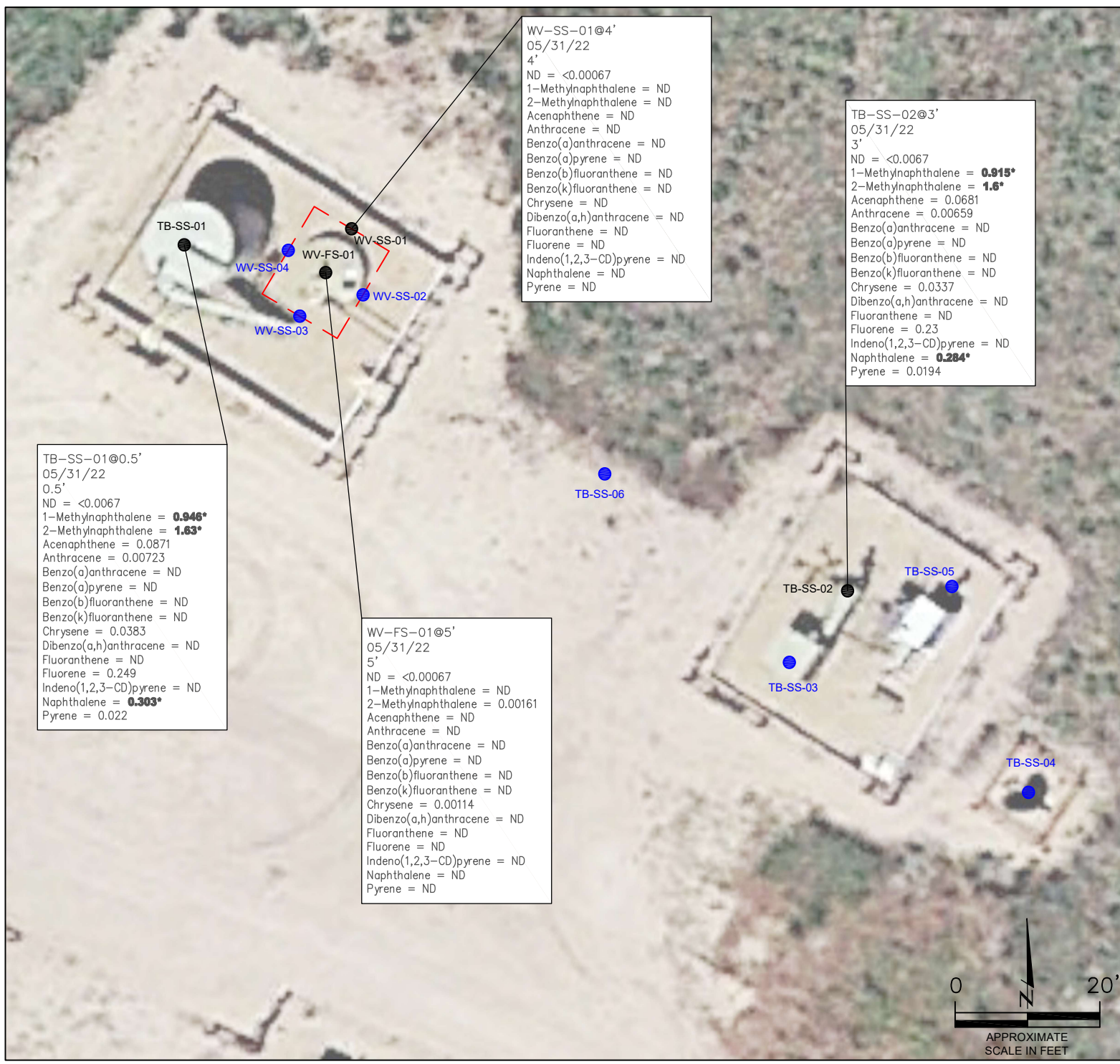


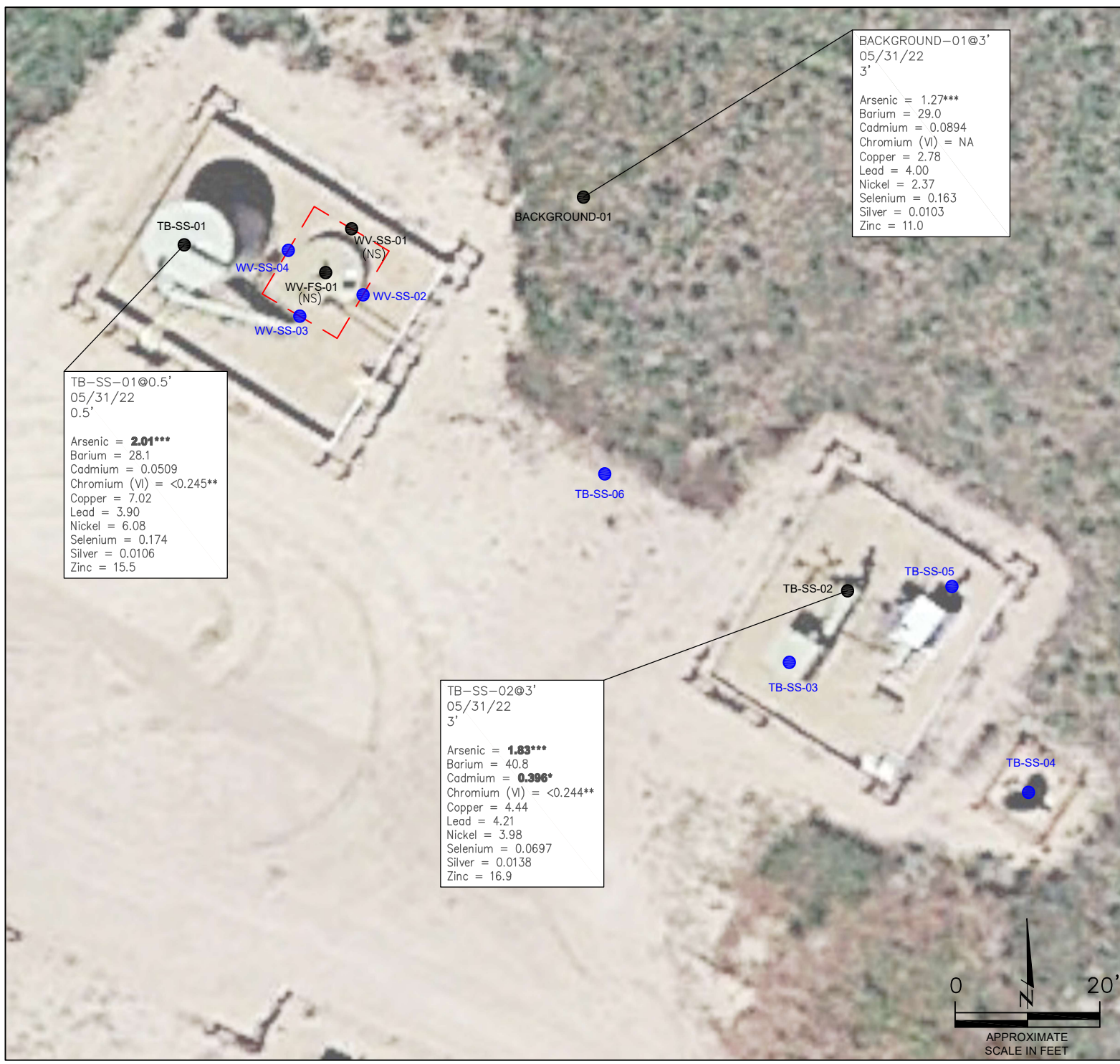
WV-SS-01@4'  
 05/31/22  
 4'  
 ND = <0.00067  
 1-Methylnaphthalene = ND  
 2-Methylnaphthalene = ND  
 Acenaphthene = ND  
 Anthracene = ND  
 Benzo(a)anthracene = ND  
 Benzo(a)pyrene = ND  
 Benzo(b)fluoranthene = ND  
 Benzo(k)fluoranthene = ND  
 Chrysene = ND  
 Dibenzo(a,h)anthracene = ND  
 Fluoranthene = ND  
 Fluorene = ND  
 Indeno(1,2,3-CD)pyrene = ND  
 Naphthalene = ND  
 Pyrene = ND

TB-SS-02@3'  
 05/31/22  
 3'  
 ND = <0.0067  
 1-Methylnaphthalene = **0.915\***  
 2-Methylnaphthalene = **1.6\***  
 Acenaphthene = 0.0681  
 Anthracene = 0.00659  
 Benzo(a)anthracene = ND  
 Benzo(a)pyrene = ND  
 Benzo(b)fluoranthene = ND  
 Benzo(k)fluoranthene = ND  
 Chrysene = 0.0337  
 Dibenzo(a,h)anthracene = ND  
 Fluoranthene = ND  
 Fluorene = 0.23  
 Indeno(1,2,3-CD)pyrene = ND  
 Naphthalene = **0.284\***  
 Pyrene = 0.0194

TB-SS-01@0.5'  
 05/31/22  
 0.5'  
 ND = <0.0067  
 1-Methylnaphthalene = **0.946\***  
 2-Methylnaphthalene = **1.63\***  
 Acenaphthene = 0.0871  
 Anthracene = 0.00723  
 Benzo(a)anthracene = ND  
 Benzo(a)pyrene = ND  
 Benzo(b)fluoranthene = ND  
 Benzo(k)fluoranthene = ND  
 Chrysene = 0.0383  
 Dibenzo(a,h)anthracene = ND  
 Fluoranthene = ND  
 Fluorene = 0.249  
 Indeno(1,2,3-CD)pyrene = ND  
 Naphthalene = **0.303\***  
 Pyrene = 0.022

WV-FS-01@5'  
 05/31/22  
 5'  
 ND = <0.00067  
 1-Methylnaphthalene = ND  
 2-Methylnaphthalene = 0.00161  
 Acenaphthene = ND  
 Anthracene = ND  
 Benzo(a)anthracene = ND  
 Benzo(a)pyrene = ND  
 Benzo(b)fluoranthene = ND  
 Benzo(k)fluoranthene = ND  
 Chrysene = 0.00114  
 Dibenzo(a,h)anthracene = ND  
 Fluoranthene = ND  
 Fluorene = ND  
 Indeno(1,2,3-CD)pyrene = ND  
 Naphthalene = ND  
 Pyrene = ND





BACKGROUND-01@3'  
05/31/22  
3'

Arsenic = 1.27\*\*\*  
Barium = 29.0  
Cadmium = 0.0894  
Chromium (VI) = NA  
Copper = 2.78  
Lead = 4.00  
Nickel = 2.37  
Selenium = 0.163  
Silver = 0.0103  
Zinc = 11.0

TB-SS-01@0.5'  
05/31/22  
0.5'

Arsenic = **2.01\*\*\***  
Barium = 28.1  
Cadmium = 0.0509  
Chromium (VI) = <0.245\*\*  
Copper = 7.02  
Lead = 3.90  
Nickel = 6.08  
Selenium = 0.174  
Silver = 0.0106  
Zinc = 15.5

TB-SS-02@3'  
05/31/22  
3'

Arsenic = **1.83\*\*\***  
Barium = 40.8  
Cadmium = **0.396\***  
Chromium (VI) = <0.244\*\*  
Copper = 4.44  
Lead = 4.21  
Nickel = 3.98  
Selenium = 0.0697  
Silver = 0.0138  
Zinc = 16.9

**LEGEND**

- VAULT 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  
(NS) – NOT SAMPLED

NOTE:  
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 COGCC TABLE 915-1 REGULATORY LIMITS.

\*VALUES EXCEED COGCC 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.

\*\*\*ARSENIC IS NATURALLY OCCURRING IN COLORADO. LOCAL CLEAN-UP LEVEL (1.59 mg/kg) is 1.25\*BACKGROUND (1.27 mg/kg).

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION

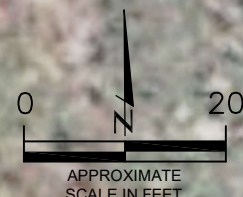
METALS IN SOIL MAP  
HSR-GUTTERSEN T3N-R64W-S1 TANK BATTERY  
CLOSURE ASSESSMENT  
40.246725 / -104.503423  
SW¼ SW¼ SEC.1 T3N R64W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 330438  
REMEDIAION # 22528

FIGURE NO.  
5

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**EAGLE**  
ENVIRONMENTAL  
CONSULTING, LLC  
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Ph: 303-433-0479 • F: 303-325-5449





## **TABLES**

**Table 1: Photoionization Detector Reading Summary**

**Table 2: Soil Analytical Results Summary**

**TABLE 1**  
**PHOTOIONIZATION DETECTOR READING SUMMARY**  
**HSR GUTTERSEN T3N-R64W-S1 TANK BATTERY**  
**CLOSURE ASSESSMENT**  
**40.246725 / -104.503423**  
**SW¼ SW¼ SEC.1 T3N R64W 6PM**  
**WELD COUNTY, COLORADO**  
**LOCATION ID # 330438**  
**REMEDIATION # 22528**

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WV-SS-01 @ 4' (40.246850 / -104.503659)	05/31/22	4	4.9	Y
WV-SS-02 @ 4' (40.246828 / -104.503655)	05/31/22	4	3.9	N
WV-SS-03 @ 4' (40.246818 / -104.503680)	05/31/22	4	4.1	N
WV-SS-04 @ 4' (40.246842 / -104.503692)	05/31/22	4	4.6	N
WV-FS-01 @ 5' (40.246835 / -104.503673)	05/31/22	5	4.5	Y
TB-SS-01 @ 0.5' (40.246846 / -104.503743)	05/31/22	0.5	14.3	Y
TB-SS-02 @ 3' (40.246716 / -104.503416)	05/31/22	3	14.7	Y
TB-SS-03 @ 3' (40.246688 / -104.503444)	05/31/22	3	2.9	N
TB-SS-04 @ 3' (40.246638 / -104.503328)	05/31/22	3	2.5	N
TB-SS-05 @ 3' (40.246717 / -104.503364)	05/31/22	3	2.7	N
TB-SS-06 @ 5' (40.246760 / -104.503536)	05/31/22	5	2.6	N
Background-01 @ 3' (40.246865 / -104.503546)	05/31/22	3	2.0	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector				

TABLE 2  
SOIL ANALYTICAL RESULTS SUMMARY  
HSR GUTTERSEN T3N-R64W-S1 TANK BATTERY  
CLOSURE ASSESSMENT  
40.246725 / -104.503423  
SW1/4 SW1/4 SEC.1 T3N R64W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID # 330438  
REMIEDIATION # 22528

Sample Location		WV-SS-01 @ 4'	WV-FS-01 @ 5'	TB-SS-01 @ 0.5'	TB-SS-02 @ 3'	Background-01 @ 3'
(Latitude / Longitude)		(40.246850 / -104.503659)	(40.246835 / -104.503673)	(40.246846 / -104.503743)	(40.246716 / -104.503416)	(40.246907 / -104.503636)
Sample Date		5/31/2022	5/31/2022	5/31/2022	5/31/2022	5/31/2022
Sample Depth		4'	5'	0.5'	3'	3'
PID Reading (ppm-v)		4.9	4.5	14.3	14.7	2.0
Regulatory Limits						
Chemical of Concern	Units	COGCC Table 915-1 RSSLs	COGCC Table 915-1 GSSLs	Local Clean-Up Level		
<b>VOCs</b>						
Benzene	mg/kg	1.2	0.0026	--	<0.00200	<0.00200
Toluene	mg/kg	490	0.69	--	<0.00200	<0.00200
Ethylbenzene	mg/kg	5.8	0.78	--	<0.00200	<0.00200
Total Xylenes	mg/kg	58	9.9	--	<0.00200	<0.00200
1,2,4-Trimethylbenzene	mg/kg	30	0.0081	--	<0.00200	<0.00200
1,3,5-Trimethylbenzene	mg/kg	27	0.0087	--	<0.00200	<0.00200
<b>Total Petroleum Hydrocarbons</b>						
TPH-GRO	mg/kg	500	--	--	<0.200	<0.200
TPH-DRO	mg/kg	500	--	--	<25.0	<25.0
TPH-RRO	mg/kg	500	--	--	<100	<100
<b>Polycyclic Aromatics Hydrocarbons</b>						
1-Methyl-naphthalene	mg/kg	18	0.006	--	<0.00067	<0.00067
2-Methyl-naphthalene	mg/kg	24	0.019	--	<0.00067	0.00161
Acenaphthene	mg/kg	360	0.55	--	<0.00067	<0.00067
Anthracene	mg/kg	1800	5.8	--	<0.00067	<0.00067
Benzo(a)-anthracene	mg/kg	1.1	0.011	--	<0.00067	<0.00067
Benzo(a)-pyrene	mg/kg	0.11	0.24	--	<0.00067	<0.00067
Benzo(b)-fluoranthene	mg/kg	1.1	0.3	--	<0.00067	<0.00067
Benzo(k)-fluoranthene	mg/kg	11	2.9	--	<0.00067	<0.00067
Chrysene	mg/kg	110	9	--	<0.00067	0.00114
Dibenzo(a,h)-anthracene	mg/kg	0.11	0.096	--	<0.00067	<0.00067
Fluoranthene	mg/kg	240	8.9	--	<0.00067	<0.00067
Fluorene	mg/kg	240	0.54	--	<0.00067	<0.00067
Indeno(1,2,3-cd)-pyrene	mg/kg	1.1	0.98	--	<0.00067	<0.00067
Naphthalene	mg/kg	2	0.0038	--	<0.00067	<0.00067
Pyrene	mg/kg	180	1.3	--	<0.00067	<0.00067
<b>Soil Suitability (Inorganics)</b>						
Boron	mg/L	2	--	--	<0.100	<0.100
pH	standard unit	6-8.3	--	--	8.33	8.12
Sodium Adsorption Ratio (SAR)	--	<6	--	--	0.0476	1.37
Specific Conductance (EC)	mmhos/cm	<4	--	--	0.224	0.930
<b>Metals</b>						
Arsenic	mg/kg	0.68***	0.29***	1.59***	NA	NA
Barium	mg/kg	15000	62	--	NA	NA
Cadmium	mg/kg	71	0.38	--	NA	NA
Copper	mg/kg	3100	46	--	NA	NA
Lead	mg/kg	400	14	--	NA	NA
Nickel	mg/kg	1500	26	--	NA	NA
Selenium	mg/kg	390	0.26	--	NA	NA
Silver	mg/kg	390	0.8	--	NA	NA
Zinc	mg/kg	23000	370	--	NA	NA
Hexavalent Chromium	mg/kg	0.3**	0.00067**	0.1 to 1.0**	NA	NA
COGCC = Colorado Oil and Gas Conservation Commission mg/kg = milligrams per kilogram mmhos/cm = millimhos per centimeter PID = Photoionization Detector ppm-v = parts per million by volume mg/L = milligrams per liter SAR = Sodium Adsorption Ratio 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 <b>BOLD</b> exceed COGCC Table 915-1 Regulatory Limits. Values presented with asterisk (*) exceed COGCC 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. ***Arsenic is naturally occurring in Colorado. The Local Clean-up Level (1.59 mg/kg) is 1.25*Background (1.27 mg/kg).						



## **ATTACHMENT A**

### **Photo Log**

# HSR Gutteresen T3N-R64W-S1 Tank Battery

Location ID 330438

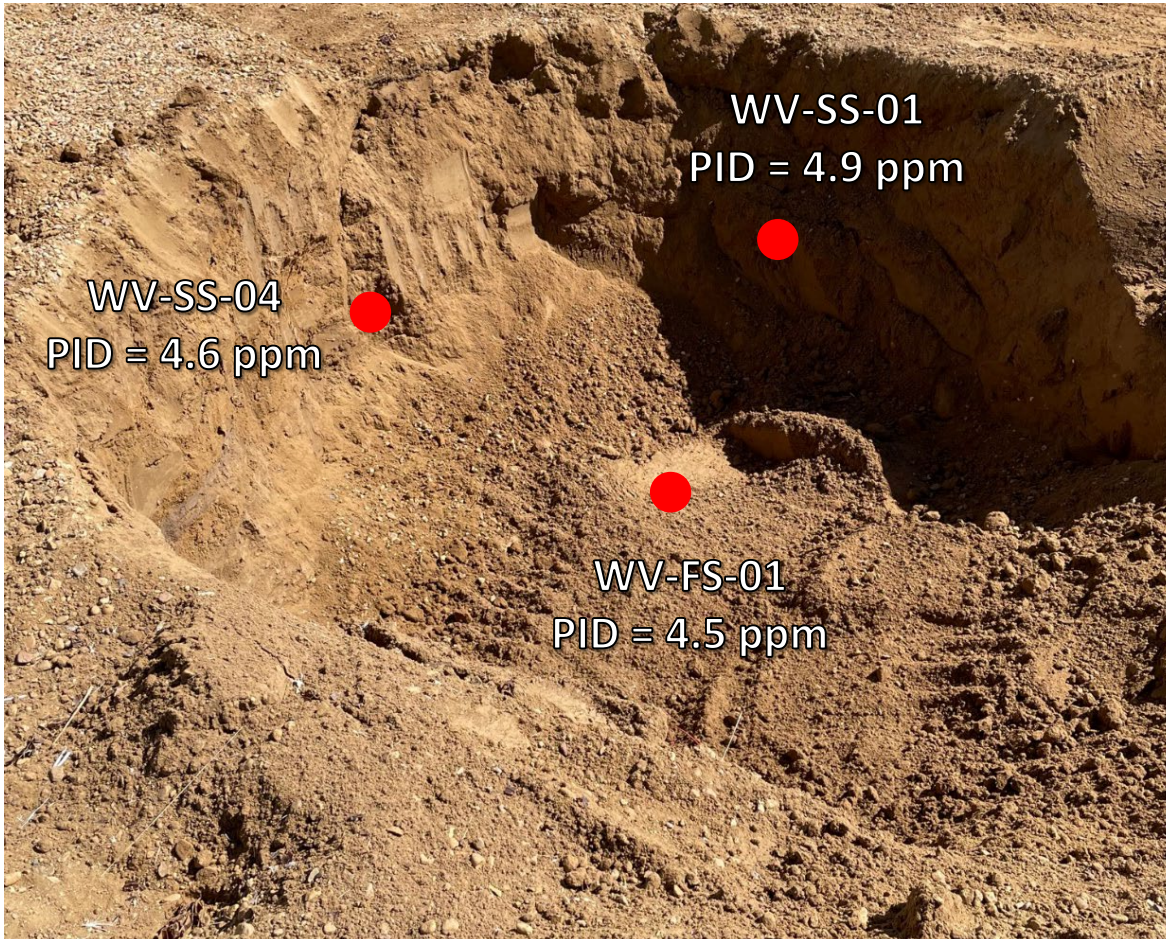
Remediation # 22528

Closure Assessment

May 2022

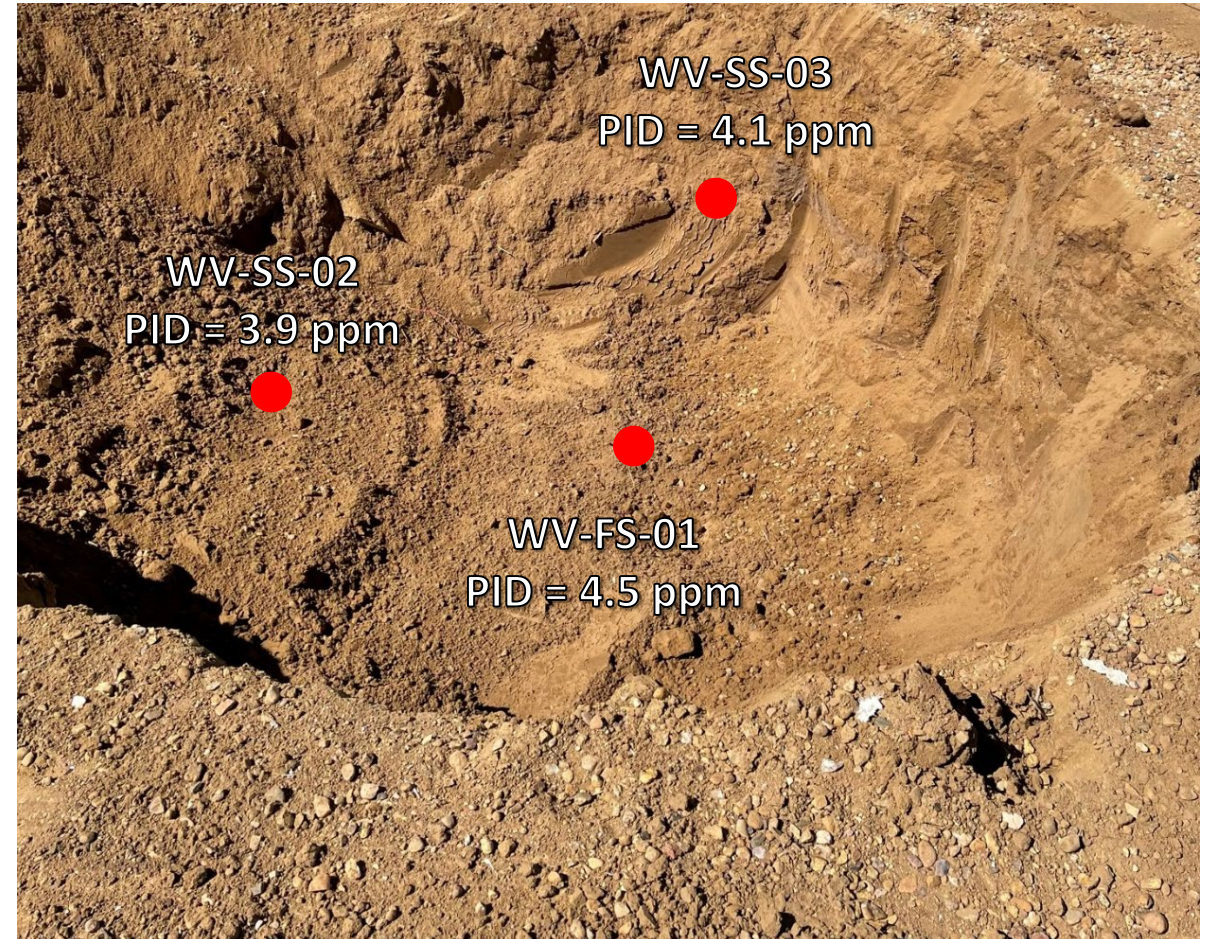


# Buried Vault Excavation – 05/31/22



Looking north at water vault excavation

No petroleum hydrocarbon staining or odor observed



Looking south at water vault excavation

No petroleum hydrocarbon staining or odor observed

# Tank Battery Decommissioning – 05/31/22

Looking north

Former production tank location – removed prior to arrival

No petroleum hydrocarbon staining or odor observed



# Tank Battery Decommissioning – 05/31/22



Looking south at separator to flowline connection point

No petroleum hydrocarbon staining or odor observed



Looking north at separator to dumpline connection point

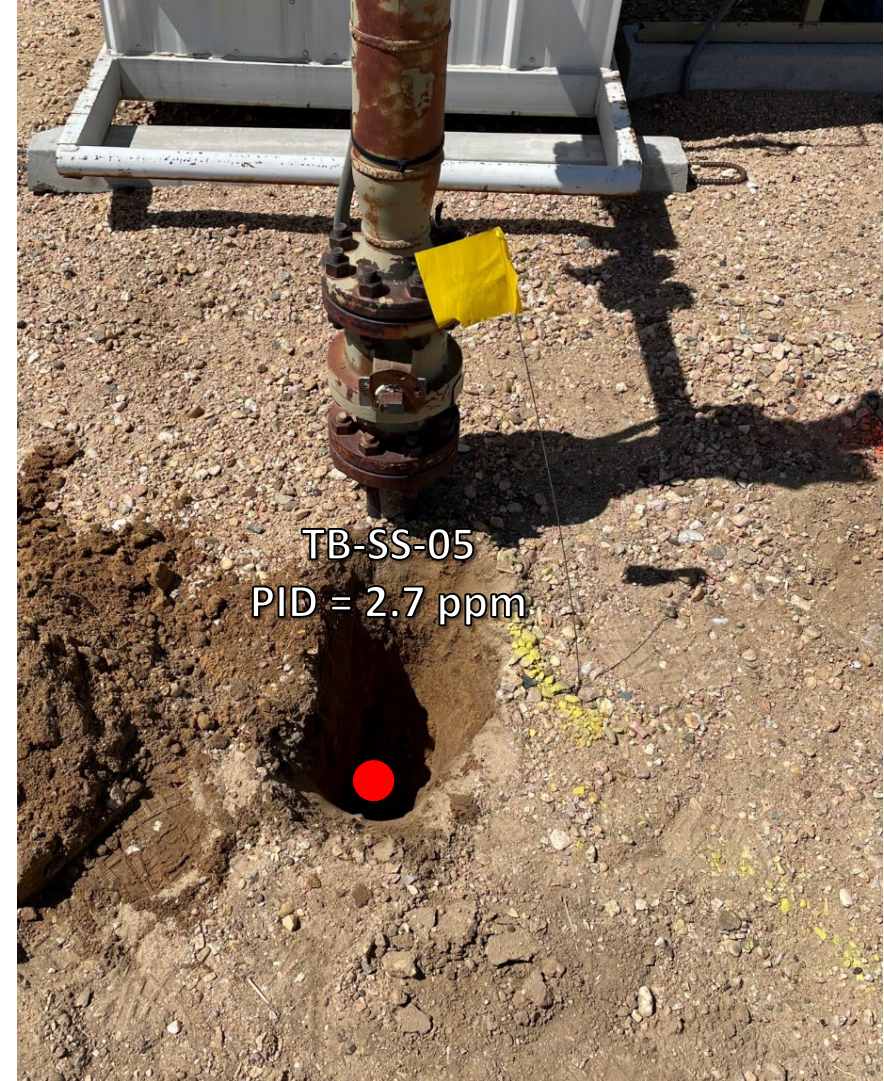
No petroleum hydrocarbon staining or odor observed

# Tank Battery Decommissioning – 05/31/22



Looking north at former flare footprint

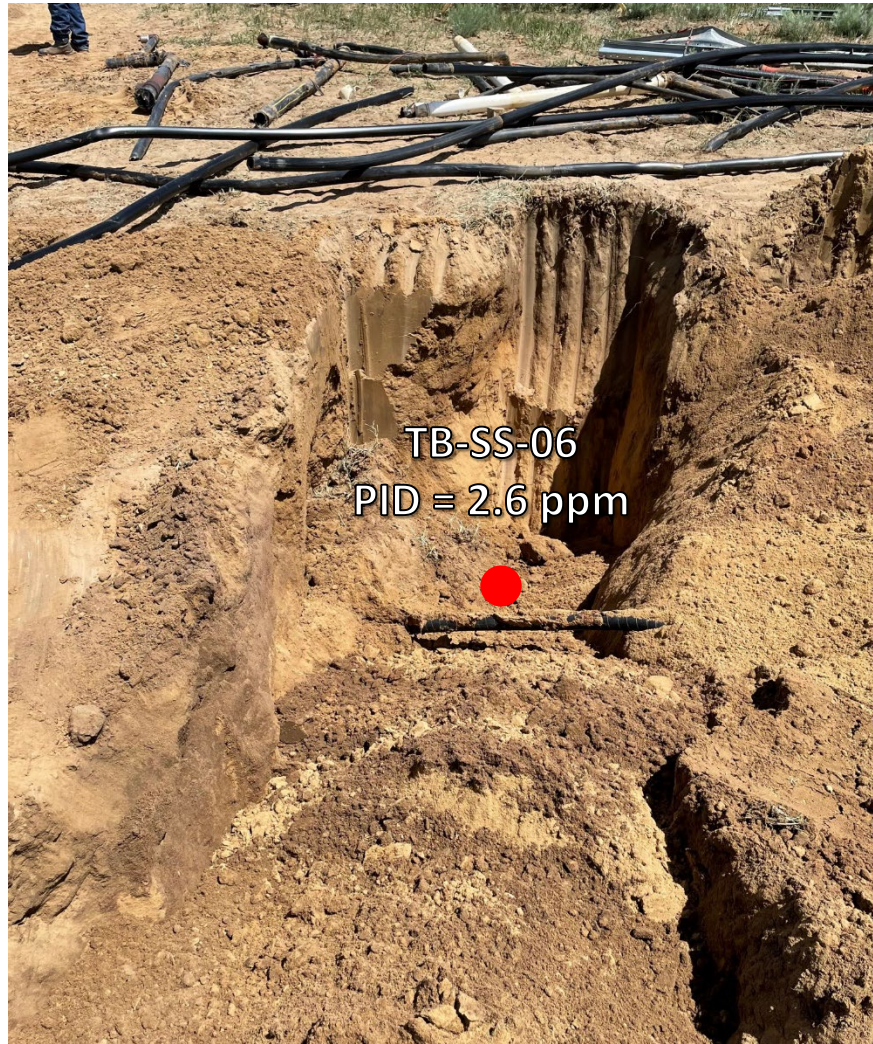
No petroleum hydrocarbon staining or odor observed



Looking south at meter house connection

No petroleum hydrocarbon staining or odor observed

# Tank Battery Decommissioning – 05/31/22



Looking north at dumpline removal excavation

No petroleum hydrocarbon staining or odor observed



## **ATTACHMENT B**

### **Laboratory Analytical Reports**



June 27, 2022

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - HSR - Guttersen  
T3N-R64W-S1 TB

Project Number - -

Attached are your analytical results for Noble - HSR - Guttersen T3N-R64W-S1 TB received by Origins Laboratory, Inc. May 31, 2022. This project is associated with Origins project number Y206047-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



Eagle Environmental Consulting, Inc.  
8000 W 44th Ave  
Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: -  
Project: Noble - HSR - Guttersen T3N-R64W-S1  
TB

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WV-SS-01@4'	Y206047-01	Soil	May 31, 2022 9:47	05/31/2022 14:25
WV-FS-01@5'	Y206047-02	Soil	May 31, 2022 9:52	05/31/2022 14:25
TB-SS-01@0.5'	Y206047-03	Soil	May 31, 2022 10:22	05/31/2022 14:25
TB-SS-02@3'	Y206047-04	Soil	May 31, 2022 11:25	05/31/2022 14:25

Chain of Custody Modification Request

On 6/21/2022, Andrew Newberry from Eagle Environmental contacted Jordan Bynon via email regarding Y206047 requesting that Table 915 Metals be added to TB-SS-01@0.5' and TB-SS-02@3'.

Requested modifications to the chain of custody were made by Jordan Bynon on 6/21/2022.

Origins Laboratory, Inc.



*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.*



Eagle Environmental Consulting, Inc.  
 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

Origins Laboratory

F-012207-01-R1  
 Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: 4200047

Client: Eagle

Client Project ID: HSR-GUTTERSEN T3N-R64W-S1 TB

Checklist Completed by: KH

Shipped Via: TD  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 6/2/12

Airbill #: N/A

Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_

Cooler Number/Temperature: 1 10.2 °C 1 °C 1 °C (Describe) °C

Thermometer ID: 1004

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)(pH <2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / ( pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup>If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 6/3/12

Origins Laboratory, Inc.

[Signature]

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.

Eagle Environmental Consulting, Inc.  
 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**WV-SS-01@4'**  
**5/31/2022 9:47:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y206047-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND		0.100	mg/L	1	B2F0216	06/02/2022	06/03/2022	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2F0301	06/03/2022	06/07/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 71.3 % 50-150 " " "

**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2F0224	06/02/2022	06/03/2022	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 105 % 70-130 " " "

Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.  
 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**WV-SS-01@4'**  
**5/31/2022 9:47:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y206047-01 (Soil)**

**GBTEX+TMBs by 8260D**

Surrogate: Toluene-d8	95.1 %		70-130			B2F02 24	06/02/2022	06/03/2022	
Surrogate: 4-Bromofluorobenzene	98.1 %		70-130			"	"	"	

**Metals by Saturated Paste by EPA 6010**

Calcium	1.43		0.499	meq/L	10	[CALC]	06/02/2022	06/03/2022	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	ND		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.000364	0.00067	mg/Kg	1	L619835	06/06/2022	06/06/2022	
2-Methylnaphthalene	ND	0.000645	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	ND	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.  
 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**WV-SS-01@4'**  
**5/31/2022 9:47:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y206047-01 (Soil)**

**PAH by 8270D SIM**

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L619835	06/06/2022	06/06/2022	
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"	
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"	
Pyrene	ND	0.000643	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	57.4 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	70.7 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	70.1 %		29-110			"	"	"	

**pH in Soil by 9045D**

pH	8.33			pH Units	1	B2F0217	06/02/2022	06/03/2022	
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**SAR by 20B Saturated Paste**

SAR	0.0476			SAR	1	B2F0215	06/02/2022	06/03/2022	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.224		0.00500	mmhos/cm	1	B2F0217	06/02/2022	06/03/2022	
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Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.  
 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**WV-FS-01@5'**  
**5/31/2022 9:52:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y206047-02 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND		0.100	mg/L	1	B2F0216	06/02/2022	06/03/2022	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	41.7		25.0	mg/kg	1	B2F0301	06/03/2022	06/07/2022	
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	71.0 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2F0224	06/02/2022	06/03/2022	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	108 %		70-130			"	"	"	
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Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.  
 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**WV-FS-01@5'**  
**5/31/2022 9:52:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y206047-02 (Soil)**

**GBTEX+TMBs by 8260D**

Surrogate: Toluene-d8	96.3 %		70-130			B2F02 24	06/02/2022	06/03/2022	
Surrogate: 4-Bromofluorobenzene	99.0 %		70-130			"	"	"	

**Metals by Saturated Paste by EPA 6010**

Calcium	<b>4.25</b>		0.499	meq/L	10	[CALC]	06/02/2022	06/03/2022	
Magnesium	<b>1.52</b>		0.823	"	"	"	"	"	
Sodium	<b>2.34</b>		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.000364	0.00067	mg/Kg	1	L619835	06/06/2022	06/06/2022	
2-Methylnaphthalene	<b>0.00161</b>	<b>0.000645</b>	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	<b>0.00114</b>	<b>0.000624</b>	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.  
 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**WV-FS-01@5'**  
**5/31/2022 9:52:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y206047-02 (Soil)**

**PAH by 8270D SIM**

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L619835	06/06/2022	06/06/2022	
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"	
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"	
Pyrene	ND	0.000643	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	56 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	66.6 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	72 %		29-110			"	"	"	

**pH in Soil by 9045D**

pH	8.12			pH Units	1	B2F0217	06/02/2022	06/03/2022	
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**SAR by 20B Saturated Paste**

SAR	1.37			SAR	1	B2F0215	06/02/2022	06/03/2022	
-----	------	--	--	-----	---	---------	------------	------------	--

**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.930		0.00500	mmhos/cm	1	B2F0217	06/02/2022	06/03/2022	
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Origins Laboratory, Inc.



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.

Eagle Environmental Consulting, Inc.  
 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**TB-SS-01@0.5'**  
**5/31/2022 10:22:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y206047-03 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND		0.100	mg/L	1	B2F0216	06/02/2022	06/03/2022	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2F0301	06/03/2022	06/07/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	89.1 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2F0224	06/02/2022	06/03/2022	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	106 %		70-130			"	"	"	
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 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**TB-SS-01@0.5'**  
**5/31/2022 10:22:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y206047-03 (Soil)**

**GBTEX+TMBs by 8260D**

Surrogate: Toluene-d8	99.0 %		70-130			B2F02 24	06/02/2022	06/03/2022	
Surrogate: 4-Bromofluorobenzene	94.0 %		70-130			"	"	"	

**Metals by Saturated Paste by EPA 6010**

Calcium	ND		0.499	meq/L	10	[CALC]	06/02/2022	06/03/2022	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	1.27		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	0.946	0.00364	0.0067	mg/Kg	10	L619835	06/06/2022	06/06/2022	
2-Methylnaphthalene	1.63	0.00645	0.0067	"	"	"	"	"	
Acenaphthene	0.0871	0.00304	0.0067	"	"	"	"	"	
Anthracene	0.00723	0.00334	0.0067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.00493	0.0067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.00468	0.0067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.00585	0.0067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.00437	0.0067	"	"	"	"	"	
Chrysene	0.0383	0.00624	0.0067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.00614	0.0067	"	"	"	"	"	
Fluoranthene	ND	0.00394	0.0067	"	"	"	"	"	
Fluorene	0.249	0.00286	0.0067	"	"	"	"	"	

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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**TB-SS-01@0.5'**  
**5/31/2022 10:22:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y206047-03 (Soil)**

**PAH by 8270D SIM**

Indeno(1,2,3-cd)pyrene	ND	0.00627	0.0067	mg/Kg	10	L619835	06/06/2022	06/06/2022	
Naphthalene	<b>0.303</b>	<b>0.00484</b>	0.0067	"	"	"	"	"	
Pyrene	<b>0.022</b>	<b>0.00643</b>	0.0067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	65 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	75.5 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	69 %		29-110			"	"	"	

**pH in Soil by 9045D**

pH	<b>8.69</b>			pH Units	1	B2F0217	06/02/2022	06/03/2022	
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**SAR by 20B Saturated Paste**

SAR	<b>2.01</b>			SAR	1	B2F0215	06/02/2022	06/03/2022	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	<b>0.234</b>		0.00500	mmhos/cm	1	B2F0217	06/02/2022	06/03/2022	
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**Table 915 metals by EPA 6020B**

Arsenic	<b>2.01</b>		0.00100	mg/kg	1	B2F2123	06/21/2022	06/21/2022	
Barium	<b>28.1</b>		0.0100	"	"	"	"	"	

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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**TB-SS-01@0.5'**

**5/31/2022 10:22:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y206047-03 (Soil)**

**Table 915 metals by EPA 6020B**

Cadmium	0.0509		0.00100	mg/kg	1	B2F2123	06/21/2022	06/21/2022	
Copper	7.02		0.0100	"	"	"	"	"	
Lead	3.90		0.00100	"	"	"	"	"	
Nickel	6.08		0.00100	"	"	"	"	"	
Selenium	0.174		0.00100	"	"	"	"	"	
Silver	0.0106		0.00100	"	"	"	"	"	
Zinc	15.5		0.0100	"	"	"	"	"	

**Total Metals by 7196A**

Chromium, Hexavalent	ND	0.245	0.504	mg/Kg	1	L622889	05/31/2022	06/22/2022	
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Origins Laboratory, Inc.



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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**TB-SS-02@3'**  
**5/31/2022 11:25:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y206047-04 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND		0.100	mg/L	1	B2F0216	06/02/2022	06/03/2022	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2F0301	06/03/2022	06/07/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	50.1 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2F0224	06/02/2022	06/03/2022	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %		70-130			"	"	"	
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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**TB-SS-02@3'**  
**5/31/2022 11:25:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y206047-04 (Soil)**

**GBTEX+TMBs by 8260D**

Surrogate: Toluene-d8	98.3 %		70-130			B2F02 24	06/02/2022	06/03/2022	
Surrogate: 4-Bromofluorobenzene	96.6 %		70-130			"	"	"	

**Metals by Saturated Paste by EPA 6010**

Calcium	2.08		0.499	meq/L	10	[CALC]	06/02/2022	06/03/2022	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	ND		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	0.915	0.00364	0.0067	mg/Kg	10	L619835	06/06/2022	06/06/2022	
2-Methylnaphthalene	1.6	0.00645	0.0067	"	"	"	"	"	
Acenaphthene	0.0681	0.00304	0.0067	"	"	"	"	"	
Anthracene	0.00659	0.00334	0.0067	"	"	"	"	"	J
Benzo(a)anthracene	ND	0.00493	0.0067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.00468	0.0067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.00585	0.0067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.00437	0.0067	"	"	"	"	"	
Chrysene	0.0337	0.00624	0.0067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.00614	0.0067	"	"	"	"	"	
Fluoranthene	ND	0.00394	0.0067	"	"	"	"	"	
Fluorene	0.23	0.00286	0.0067	"	"	"	"	"	

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 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**TB-SS-02@3'**  
**5/31/2022 11:25:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y206047-04 (Soil)**

**PAH by 8270D SIM**

Indeno(1,2,3-cd)pyrene	ND	0.00627	0.0067	mg/Kg	10	L619835	06/06/2022	06/06/2022	
Naphthalene	<b>0.284</b>	<b>0.00484</b>	0.0067	"	"	"	"	"	
Pyrene	<b>0.0194</b>	<b>0.00643</b>	0.0067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	70.2 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	78.3 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	74.1 %		29-110			"	"	"	

**pH in Soil by 9045D**

pH	<b>8.16</b>			pH Units	1	B2F0217	06/02/2022	06/03/2022	
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**SAR by 20B Saturated Paste**

SAR	<b>0.0693</b>			SAR	1	B2F0215	06/02/2022	06/03/2022	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	<b>0.281</b>		0.00500	mmhos/cm	1	B2F0217	06/02/2022	06/03/2022	
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**Table 915 metals by EPA 6020B**

Arsenic	<b>1.83</b>		0.00100	mg/kg	1	B2F2123	06/21/2022	06/21/2022	
Barium	<b>40.8</b>		0.0100	"	"	"	"	"	

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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**TB-SS-02@3'**

**5/31/2022 11:25:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y206047-04 (Soil)**

**Table 915 metals by EPA 6020B**

Cadmium	0.396		0.00100	mg/kg	1	B2F2123	06/21/2022	06/21/2022	
Copper	4.44		0.0100	"	"	"	"	"	
Lead	4.21		0.00100	"	"	"	"	"	
Nickel	3.98		0.00100	"	"	"	"	"	
Selenium	0.0697		0.00100	"	"	"	"	"	
Silver	0.0138		0.00100	"	"	"	"	"	
Zinc	16.9		0.0100	"	"	"	"	"	

**Total Metals by 7196A**

Chromium, Hexavalent	ND	0.244	0.5	mg/Kg	1	L622889	05/31/2022	06/22/2022	
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 Project Number: -  
 Project: Noble - HSR - Gutttersen T3N-R64W-S1  
 TB

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2F0224 - EPA 5030 (soil)**

**Blank (B2F0224-BLK1)**

Prepared: 06/02/2022 Analyzed: 06/03/2022

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.0100	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125	104		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	99.2		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	96.6		70-130			

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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2F0224 - EPA 5030 (soil)**

**LCS (B2F0224-BS1)**

Prepared: 06/02/2022 Analyzed: 06/03/2022

1,2,4-Trimethylbenzene	0.101	0.00200	mg/kg	0.100		101	70-130			
1,3,5-Trimethylbenzene	0.101	0.00200	"	0.100		101	70-130			
Benzene	0.103	0.00200	"	0.100		103	70-130			
Ethylbenzene	0.104	0.00200	"	0.100		104	70-130			
Naphthalene	0.111	0.0100	"	0.100		111	70-130			
Toluene	0.101	0.00200	"	0.100		101	70-130			
o-Xylene	0.101	0.00200	"	0.100		101	70-130			
m,p-Xylene	0.212	0.00400	"	0.200		106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		99.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		93.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

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 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B2F0224 - EPA 5030 (soil)

Matrix Spike (B2F0224-MS1)	Source: Y206024-01			Prepared: 06/02/2022 Analyzed: 06/03/2022						
1,2,4-Trimethylbenzene	0.0965	0.00200	mg/kg	0.100	ND	96.5	70-130			
1,3,5-Trimethylbenzene	0.0970	0.00200	"	0.100	ND	97.0	70-130			
Benzene	0.0934	0.00200	"	0.100	ND	93.4	70-130			
Ethylbenzene	0.0986	0.00200	"	0.100	ND	98.6	70-130			
Naphthalene	0.0925	0.0100	"	0.100	0.00172	90.8	70-130			
Toluene	0.0935	0.00200	"	0.100	ND	93.5	70-130			
o-Xylene	0.0961	0.00200	"	0.100	ND	96.1	70-130			
m,p-Xylene	0.203	0.00400	"	0.200	ND	101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		97.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		108	70-130			

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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B2F0224 - EPA 5030 (soil)

Matrix Spike Dup (B2F0224-MSD1)	Source: Y206024-01			Prepared: 06/02/2022 Analyzed: 06/03/2022						
1,2,4-Trimethylbenzene	0.0997	0.00200	mg/kg	0.100	ND	99.7	70-130	3.28	20	
1,3,5-Trimethylbenzene	0.0985	0.00200	"	0.100	ND	98.5	70-130	1.47	20	
Benzene	0.103	0.00200	"	0.100	ND	103	70-130	9.89	20	
Ethylbenzene	0.104	0.00200	"	0.100	ND	104	70-130	5.37	20	
Naphthalene	0.0967	0.0100	"	0.100	0.00172	94.9	70-130	4.42	20	
Toluene	0.102	0.00200	"	0.100	ND	102	70-130	8.54	20	
o-Xylene	0.101	0.00200	"	0.100	ND	101	70-130	4.47	20	
m,p-Xylene	0.213	0.00400	"	0.200	ND	107	70-130	5.10	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		98.2	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		105	70-130			

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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Gutttersen T3N-R64W-S1  
 TB

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B2F0301 - EPA 3550B</b>										
<b>Blank (B2F0301-BLK1)</b>										
					Prepared: 06/03/2022 Analyzed: 06/06/2022					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	20		"	24.9		82.4	50-150			

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 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2F0301 - EPA 3550B**

**LCS (B2F0301-BS1)**

Prepared: 06/03/2022 Analyzed: 06/06/2022

Diesel (C10-C28)	881	50.0	mg/kg	1000		88.1	70-130			
Residual Range Organics (C28-C40)	892	200	"	1000		89.2	70-130			
Surrogate: o-Terphenyl	37		"	49.8		74.5	50-150			

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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B2F0301 - EPA 3550B</b>										
<b>Matrix Spike (B2F0301-MS1)</b>		<b>Source: Y206002-01</b>			Prepared: 06/03/2022 Analyzed: 06/06/2022					
Diesel (C10-C28)	2230	50.0	mg/kg	1000	909	132	70-130			QM-07
Residual Range Organics (C28-C40)	1200	200	"	1000	225	97.4	70-130			
Surrogate: o-Terphenyl	36		"	49.8		71.5	50-150			

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**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2F0301 - EPA 3550B**

<b>Matrix Spike Dup (B2F0301-MSD1)</b>	<b>Source: Y206002-01</b>			<b>Prepared: 06/03/2022 Analyzed: 06/06/2022</b>						
Diesel (C10-C28)	2520	50.0	mg/kg	1000	909	161	70-130	12.5	35	QM-07
Residual Range Organics (C28-C40)	1290	200	"	1000	225	107	70-130	7.59	35	
Surrogate: o-Terphenyl	38		"	49.8		75.4	50-150			

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 TB

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Metals by SM 3500 Series Methods - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2F2123 - Default Prep Metals**

**Blank (B2F2123-BLK1)**

Prepared: 06/21/2022 Analyzed: 06/21/2022

Arsenic	ND	0.00100	mg/kg							U
Barium	ND	0.0100	"							U
Cadmium	ND	0.00100	"							U
Copper	ND	0.0100	"							U
Lead	ND	0.00100	"							U
Nickel	ND	0.00100	"							U
Selenium	ND	0.00100	"							U
Silver	ND	0.00100	"							U
Zinc	ND	0.0100	"							U

**LCS (B2F2123-BS1)**

Prepared: 06/21/2022 Analyzed: 06/21/2022

Arsenic	0.0498	0.00100	mg/kg	0.0500		99.7	80-120			
Barium	4.94	0.0100	"	5.00		98.9	80-120			
Cadmium	0.0504	0.00100	"	0.0500		101	80-120			
Copper	0.509	0.0100	"	0.500		102	80-120			
Lead	0.0503	0.00100	"	0.0500		101	80-120			
Nickel	0.0509	0.00100	"	0.0500		102	80-120			
Selenium	0.0474	0.00100	"	0.0500		94.8	80-120			
Silver	0.0512	0.00100	"	0.0500		102	80-120			
Zinc	0.512	0.0100	"	0.500		102	80-120			

**Matrix Spike (B2F2123-MS1)**

Source: Y206500-01

Prepared: 06/21/2022 Analyzed: 06/21/2022

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 TB

**Metals by SM 3500 Series Methods - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2F2123 - Default Prep Metals**

<b>Matrix Spike (B2F2123-MS1)</b>		<b>Source: Y206500-01</b>			Prepared: 06/21/2022 Analyzed: 06/21/2022					
Arsenic	6.80	0.00100	mg/kg	4.60	1.73	110	75-125			
Barium	518	0.0100	"	460	40.1	104	75-125			
Cadmium	4.76	0.00100	"	4.60	0.0342	103	75-125			
Copper	48.2	0.0100	"	46.0	1.89	101	75-125			
Lead	9.68	0.00100	"	4.60	3.46	135	75-125			QM-07
Nickel	8.72	0.00100	"	4.60	2.32	139	75-125			QR-DUP
Selenium	4.15	0.00100	"	4.60	0.0280	89.6	75-125			
Silver	4.70	0.00100	"	4.60	0.00517	102	75-125			
Zinc	57.6	0.0100	"	46.0	8.96	106	75-125			
<b>Matrix Spike Dup (B2F2123-MSD1)</b>		<b>Source: Y206500-01</b>			Prepared: 06/21/2022 Analyzed: 06/21/2022					
Arsenic	6.35	0.00100	mg/kg	5.11	1.73	90.6	75-125	6.78	20	
Barium	541	0.0100	"	511	40.1	98.0	75-125	4.28	20	
Cadmium	5.19	0.00100	"	5.11	0.0342	101	75-125	8.60	20	
Copper	54.2	0.0100	"	51.1	1.89	102	75-125	11.7	20	
Lead	7.88	0.00100	"	5.11	3.46	86.6	75-125	20.5	20	QM-07
Nickel	7.28	0.00100	"	5.11	2.32	97.2	75-125	18.0	20	
Selenium	4.84	0.00100	"	5.11	0.0280	94.1	75-125	15.3	20	
Silver	5.23	0.00100	"	5.11	0.00517	102	75-125	10.7	20	
Zinc	57.2	0.0100	"	51.1	8.96	94.3	75-125	0.782	20	

Origins Laboratory, Inc.



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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**Saturated Paste - Quality Control  
 Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2F0217 - NO PREP**

**Blank (B2F0217-BLK1)**

Prepared: 06/02/2022 Analyzed: 06/03/2022

pH	0.00		pH Units							
Specific Conductance (EC)	0.00710	0.00500	mmhos/cm							

**Duplicate (B2F0217-DUP1)**

**Source: Y206047-01**

Prepared: 06/02/2022 Analyzed: 06/03/2022

pH	8.34		pH Units		8.33			0.120	25	
Specific Conductance (EC)	0.237	0.00500	mmhos/cm		0.224			5.90	25	

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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**Total Metals by 7196A - Quality Control**  
**Waypoint Analytical, LLC.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L622889 -</b>										
<b>DUP (L 81192-DUP)</b>		<b>Source: 81192</b>			Prepared: Analyzed: 06/22/2022					
Chromium, Hexavalent	ND	0.247	mg/Kg		<0.508		-	0	20	
<b>MS (L 81192-MS)</b>		<b>Source: 81192</b>			Prepared: Analyzed: 06/22/2022					
Chromium, Hexavalent	6.37	0.25	mg/Kg	8.21	<0.250	78	75-125			
<b>MSD (L 81192-MSD)</b>		<b>Source: 81192</b>			Prepared: Analyzed: 06/22/2022					
Chromium, Hexavalent	431	24.8	mg/Kg	661	<24.8	65	75-125			*
<b>LCS (LCS)</b>					Prepared: Analyzed: 06/22/2022					
Chromium, Hexavalent	6.98	0.244	mg/Kg	8		87	75-125			
<b>LRB (LRB)</b>					Prepared: Analyzed: 06/22/2022					
Chromium, Hexavalent	ND	0.5	mg/Kg				-			

Origins Laboratory, Inc.



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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L619835 - 3550B**

<b>MSD (L 90166-MSD-L619835)</b>		<b>Source: 90166</b>			Prepared: 06/06/2022 Analyzed: 06/06/2022					
Benzo(a)pyrene	0.109	0.000468	mg/Kg	0.166	<0.000468	65.6	30-130	5.6	30	
1-Methylnaphthalene	0.0931	0.000364	"	0.166	0.000511	55.7	30-130	11.5	30	
2-Methylnaphthalene	0.11	0.000645	"	0.166	0.00169	65.2	30-130	14.9	30	
Acenaphthene	0.0997	0.000304	"	0.166	<0.000304	60	30-130	11.3	30	
Benzo(a)anthracene	0.126	0.000493	"	0.166	<0.000493	75.9	30-130	10.8	30	
Pyrene	0.11	0.000643	"	0.166	<0.000643	66.2	30-130	9.7	30	
Benzo(b)fluoranthene	0.113	0.000585	"	0.166	<0.000585	68	30-130	2.6	30	
Benzo(k)fluoranthene	0.0954	0.000437	"	0.166	<0.000437	57.4	30-130	13.3	30	
Chrysene	0.108	0.000624	"	0.166	<0.000624	65	30-130	5.7	30	
Dibenz(a,h)anthracene	0.124	0.000614	"	0.166	<0.000614	74.6	30-130	2.4	30	
Fluoranthene	0.109	0.000394	"	0.166	<0.000394	65.6	30-130	8.7	30	
Fluorene	0.116	0.000286	"	0.166	<0.000286	69.8	30-130	9	30	
Indeno(1,2,3-cd)pyrene	0.124	0.000627	"	0.166	<0.000627	74.6	30-130	0	30	
Naphthalene	0.0908	0.000484	"	0.166	<0.000484	54.6	30-130	10.1	30	
Anthracene	0.102	0.000334	"	0.166	<0.000334	61.4	30-130	6.4	30	
Surrogate: 4-Terphenyl-d14	71.2		"	0.331	246	71.2	33-122			
Surrogate: 2-Fluorobiphenyl	55.5		"	0.331	191	55.5	33-115			
Surrogate: Nitrobenzene-d5	71.2		"	0.331	241	71.2	29-110			

<b>MS (L 90166-MS-L619835)</b>		<b>Source: 90166</b>			Prepared: 06/06/2022 Analyzed: 06/06/2022					
Benzo(a)pyrene	0.103	0.000468	mg/Kg	0.166	<0.000468	62	30-130			
Benzo(b)fluoranthene	0.11	0.000585	"	0.166	<0.000585	66.2	30-130			
1-Methylnaphthalene	0.0829	0.000364	"	0.166	0.000511	49.6	30-130			
2-Methylnaphthalene	0.0947	0.000645	"	0.166	0.00169	56	30-130			
Acenaphthene	0.089	0.000304	"	0.166	<0.000304	53.6	30-130			
Anthracene	0.0956	0.000334	"	0.166	<0.000334	57.5	30-130			
Benzo(k)fluoranthene	0.0835	0.000437	"	0.166	<0.000437	50.3	30-130			

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Martin C Eckert III  
 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L619835 - 3550B**

<b>MS (L 90166-MS-L619835)</b>		<b>Source: 90166</b>			Prepared: 06/06/2022 Analyzed: 06/06/2022					
Benzo(a)anthracene	0.113	0.000493	mg/Kg	0.166	<0.000493	68	30-130			
Pyrene	0.0998	0.000643	"	0.166	<0.000643	60.1	30-130			
Chrysene	0.102	0.000624	"	0.166	<0.000624	61.4	30-130			
Dibenz(a,h)anthracene	0.121	0.000614	"	0.166	<0.000614	72.8	30-130			
Fluoranthene	0.0999	0.000394	"	0.166	<0.000394	60.1	30-130			
Fluorene	0.106	0.000286	"	0.166	<0.000286	63.8	30-130			
Indeno(1,2,3-cd)pyrene	0.124	0.000627	"	0.166	<0.000627	74.6	30-130			
Naphthalene	0.082	0.000484	"	0.166	<0.000484	49.3	30-130			
Surrogate: 2-Fluorobiphenyl	47.2		"	0.332	191	47.2	33-115			
Surrogate: 4-Terphenyl-d14	64.1		"	0.332	246	64.1	33-122			
Surrogate: Nitrobenzene-d5	62.9		"	0.332	241	62.9	29-110			

<b>LCS (LCS-L619835)</b>		Prepared: 06/06/2022 Analyzed: 06/06/2022								
Benzo(a)anthracene	0.105	0.000493	mg/Kg	0.167		62.8	30-130			
Benzo(a)pyrene	0.106	0.000468	"	0.167		63.4	30-130			
Benzo(b)fluoranthene	0.0963	0.000585	"	0.167		57.6	30-130			
Naphthalene	0.0892	0.000484	"	0.167		53.4	30-130			
Indeno(1,2,3-cd)pyrene	0.108	0.000627	"	0.167		64.6	30-130			
Fluorene	0.101	0.000286	"	0.167		60.4	30-130			
Fluoranthene	0.119	0.000394	"	0.167		71.2	30-130			
Dibenz(a,h)anthracene	0.115	0.000614	"	0.167		68.8	30-130			
Benzo(k)fluoranthene	0.0938	0.000437	"	0.167		56.1	30-130			
Pyrene	0.119	0.000643	"	0.167		71.2	30-130			
Anthracene	0.114	0.000334	"	0.167		68.2	30-130			
Acenaphthene	0.105	0.000304	"	0.167		62.8	30-130			
2-Methylnaphthalene	0.089	0.000645	"	0.167		53.2	30-130			
1-Methylnaphthalene	0.0898	0.000364	"	0.167		53.7	30-130			

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 Project Number: -  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L619835 - 3550B**

**LCS (LCS-L619835)**

Prepared: 06/06/2022 Analyzed: 06/06/2022

Chrysene	0.0986	0.000624	mg/Kg	0.167		59	30-130			
Surrogate: Nitrobenzene-d5	63.3		"	0.333		63.3	29-110			
Surrogate: 4-Terphenyl-d14	78.3		"	0.333		78.3	33-122			
Surrogate: 2-Fluorobiphenyl	59.4		"	0.333		59.4	33-115			

**LRB (LRB-L619835)**

Prepared: 06/06/2022 Analyzed: 06/06/2022

Benzo(b)fluoranthene	ND	0.00067	mg/Kg				-			
Pyrene	ND	0.00067	"				-			
Chrysene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	80.1		"	0.333		80.1	29-110			
Surrogate: 4-Terphenyl-d14	80.7		"	0.333		80.7	33-122			
Surrogate: 2-Fluorobiphenyl	55.5		"	0.333		55.5	33-115			

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Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: -  
Project: Noble - HSR - Guttersen T3N-R64W-S1  
TB

### Notes and Definitions

U Sample is Non-Detect.

QR-DUP RPD exceeds QC acceptance criteria, this indicates source sample is not homogenous.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

J Estimated Value. Analyte below reported quantitation limit.

\* QC Failure

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

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Jordan A. Bynon, Project Manager



July 01, 2022

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

**Project Name - Noble - HSR - Guttersen  
T3N-R64W-S1 TB**

**Project Number - [none]**

Attached are your analytical results for Noble - HSR - Guttersen T3N-R64W-S1 TB received by Origins Laboratory, Inc. June 21, 2022. This project is associated with Origins project number Y206516-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Eagle Environmental Consulting, Inc.  
8000 W 44th Ave  
Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - HSR - Guttersen T3N-R64W-S1  
TB

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Background-01@3'	Y206516-01	Soil	May 31, 2022 11:01	06/21/2022 15:58

Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.  
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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

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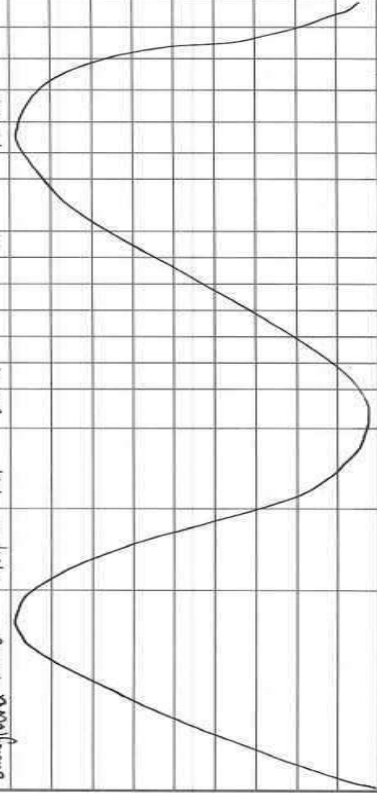
page | of |

Client: Eagle Env. Consulting  
 Address: 8000 W 44th Ave  
Wheat Ridge, CO 80033  
 Telephone Number: 303-433-0479  
 Email Address: mce@eagle-enviro.com

Project Manager: Martin Eckert III  
 Project Name: HSR - Guttersen T3N-R64W-S1 Tank Bottom  
 Project Number: ER  
 Samples Collected by: ER

Fax: 303.265.9645 | Phone: 303.433.1322

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #			Other
Background-01e3'	5/31/22	1101	2	X				X					1 pH = saturated
													2 paste prep
													3
													4 MDS needed
													5
													6
													7
													8
													9
													10



Relinquished By: [Signature] Date: 6/2/22 Time: 1558  
 Relinquished By: [Signature] Date: 6/2/22 Time: 1558

Received By: [Signature] Date: 6/2/22 Time: 1558  
 Received By: [Signature] Date: 6/2/22 Time: 1558

Turnaround Time:  24 Hr  48 Hr  Standard

Temp Received - 0.5 Date Results Needed Noble

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*J. Bynon*

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Eagle Environmental Consulting, Inc.  
 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

Origins Laboratory

F-012207-01-R1  
Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: Y200514 Client: Eagle/Noble - Gutteresen  
 Client Project ID: T3N-R64W TB

Checklist Completed by: JB Shipped Via: HD  
 Date/Time completed: 6-22-22 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: N/A

Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_

Cooler Number/Temperature: 1 0.5 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		X		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)(pH < 2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			X	
Additional Comments (if any):				

<sup>(1)</sup>If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) MP Date/Time Reviewed 6/23/22

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*J. Bynon*

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**Background-01@3'**  
**5/31/2022 11:01:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y206516-01 (Soil)**

**pH in Soil by 9045D**

pH	7.98		pH Units	1	B2F2313	ACC	06/23/2022	06/24/2022
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**Table 915 metals by EPA 6020B**

Arsenic	1.27	0.00100	mg/kg	1	B2F2222	CW	06/22/2022	06/22/2022
Barium	29.0	0.0100	"	"	"	CW	"	"
Cadmium	0.0894	0.00100	"	"	"	CW	"	"
Copper	2.78	0.0100	"	"	"	CW	"	"
Lead	4.00	0.00100	"	"	"	CW	"	"
Nickel	2.37	0.00100	"	"	"	CW	"	"
Selenium	0.163	0.00100	"	"	"	CW	"	"
Silver	0.0103	0.00100	"	"	"	CW	"	"
Zinc	11.0	0.0100	"	"	"	CW	"	"

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 Project Number: [none]  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**Metals by SM 3500 Series Methods - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2F2222 - Default Prep Metals**

**Blank (B2F2222-BLK1)**

Prepared: 06/22/2022 Analyzed: 06/22/2022

Arsenic	ND	0.00100	mg/kg							U
Barium	ND	0.0100	"							U
Cadmium	ND	0.00100	"							U
Copper	ND	0.0100	"							U
Lead	ND	0.00100	"							U
Nickel	ND	0.00100	"							U
Selenium	ND	0.00100	"							U
Silver	ND	0.00100	"							U
Zinc	ND	0.0100	"							U

**LCS (B2F2222-BS1)**

Prepared: 06/22/2022 Analyzed: 06/22/2022

Arsenic	0.0524	0.00100	mg/kg	0.0500		105	80-120
Barium	5.14	0.0100	"	5.00		103	80-120
Cadmium	0.0516	0.00100	"	0.0500		103	80-120
Copper	0.515	0.0100	"	0.500		103	80-120
Lead	0.0490	0.00100	"	0.0500		98.0	80-120
Nickel	0.0533	0.00100	"	0.0500		107	80-120
Selenium	0.0531	0.00100	"	0.0500		106	80-120
Silver	0.0513	0.00100	"	0.0500		103	80-120
Zinc	0.531	0.0100	"	0.500		106	80-120

**Matrix Spike (B2F2222-MS1)**

Source: Y206509-01

Prepared: 06/22/2022 Analyzed: 06/22/2022

Arsenic	9.91	0.00100	mg/kg	5.74	4.90	87.2	75-125
Barium	671	0.0100	"	574	94.0	100	75-125
Cadmium	5.83	0.00100	"	5.74	0.124	99.3	75-125
Copper	62.4	0.0100	"	57.4	8.94	93.1	75-125
Lead	15.6	0.00100	"	5.74	11.2	77.0	75-125

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 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**Metals by SM 3500 Series Methods - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2F2222 - Default Prep Metals**

<b>Matrix Spike (B2F2222-MS1)</b>		<b>Source: Y206509-01</b>			<b>Prepared: 06/22/2022 Analyzed: 06/22/2022</b>					
Nickel	14.8	0.00100	mg/kg	5.74	9.67	88.5	75-125			
Selenium	10.0	0.00100	"	5.74	0.243	171	75-125			QM-07
Silver	5.64	0.00100	"	5.74	0.0376	97.5	75-125			
Zinc	73.5	0.0100	"	57.4	31.0	74.0	75-125			QM-07
<b>Matrix Spike Dup (B2F2222-MSD1)</b>		<b>Source: Y206509-01</b>			<b>Prepared: 06/22/2022 Analyzed: 06/22/2022</b>					
Arsenic	11.5	0.00100	mg/kg	5.68	4.90	116	75-125	14.5	20	
Barium	661	0.0100	"	568	94.0	99.9	75-125	1.47	20	
Cadmium	5.77	0.00100	"	5.68	0.124	99.6	75-125	0.951	20	
Copper	65.0	0.0100	"	56.8	8.94	98.7	75-125	4.01	20	
Lead	18.2	0.00100	"	5.68	11.2	123	75-125	15.2	20	
Nickel	15.6	0.00100	"	5.68	9.67	105	75-125	5.80	20	
Selenium	10.3	0.00100	"	5.68	0.243	176	75-125	2.02	20	QM-07
Silver	5.65	0.00100	"	5.68	0.0376	98.9	75-125	0.223	20	
Zinc	80.0	0.0100	"	56.8	31.0	86.3	75-125	8.47	20	

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 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - HSR - Guttersen T3N-R64W-S1  
 TB

**Saturated Paste - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B2F2313 - NO PREP**

**Duplicate (B2F2313-DUP1)**

**Source: Y206515-01**

Prepared: 06/23/2022 Analyzed: 06/24/2022

pH	8.24		pH Units		8.27			0.363	25	
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Eagle Environmental Consulting, Inc.  
8000 W 44th Ave  
Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - HSR - Guttersen T3N-R64W-S1  
TB

### Notes and Definitions

U Sample is Non-Detect.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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