

Tank Battery Closure Checklist

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

Additional attachments (optional):		Pit Closure	—	Wellhead Closure	8-5-21	Flowlines Closure	8-5-21	Partially Buried Vault Closure	8-5-21
Site Name & COGCC Facility Number: <i>NAF-Laura 4-65-3 SWNW</i>		Date: <i>8-5-21</i>						Remediation Project #: <i>18944</i>	
Associated Wells: <i>476919</i> <i>1</i>		Age of Site:						Number of Photos Attached: <i>5</i>	
Location: (GPS coordinates of southeast berm)								<i>40.345083 / -104.433000</i>	
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)									

Overall good condition

USCS Soil Type: <i>CL</i>	Estimated Depth to Groundwater: <i>~10-20'</i>
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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	Oil	Oil					
Size (barrels)	<i>210</i>	<i>300</i>					
Age							
Construction	<i>Steel</i>	<i>Steel</i>					
Tank type	<i>AST</i>	<i>AST</i>					
Visual Integrity	<i>Good</i>	<i>Good</i>					
Condition of tank	<i>Slight Rust</i>	<i>Slight Rust</i>					
PID Readings							
Soil impacts present at valves or hatches?	<i>N/A - no</i>	<i>Staining / no odor</i>					
PID Readings	<i>2.4</i>	<i>3.7</i>					
Sample taken? Location/ Sample ID#	<i>TB-SS-01 e1'</i>	<i>TB-SS-02 e1'</i>					
Photo Number(s)	<i>EAGLE provided 1</i>						

Other observations regarding tanks:

Tanks removed prior to assessment

Separators

Separator size	<i>100</i>						
Vertical or Horizontal	<i>horizontal</i>						
Age							
Soil impacts	<i>No</i>						
PID Readings	<i>0.5</i>						
Sample taken? Location/ Sample ID#	<i>TB-SS-05 e3'</i>						
Photo Number(s)	<i>EAGLE provided 1</i>						

Other observations regarding separators

Removed prior to assessment

Third Party Equipment

Type	<i>Meter House</i>						
Age							

Third Party	Western Midstream							
Removal Date	N/A - Still onsite							
Sample taken?	TB-SS-04 @ 0.5'							
PID Readings	0.6							
Photo Number(s)	EAGLE provided 1							

Other Facility Equipment

Equipment type	Flare							
Equipment Condition	Good							
Age								
Soil Impacts	N/A							
PID Readings	0.8							
Sample taken?	TB-SS-07 @ 0.5'							
Photo Number(s)	EAGLE provided 1							

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		Yes - more than 10 cubic yards	
Total number of samples field screened:		5		Total number of samples collected:		5	
Highest PID Reading:		3.7 (TB-SS-02 @ 1')		Total number of samples submitted to lab for analysis:		3	
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		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:							

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	8-5-21	Flowline Closure	8-5-21	Tank Battery Closure	8-5-21
Site Name & COGCC Facility Number: NHF-Laura 4-63-350NW		Date: 8-5-21				Remediation Project #: 18944			
Associated Wells: 476919 1		Age of Site:				Number of Photos Attached: 2			
Location: (GPS coordinates of vault or southeastern tank berm for multiple)								Estimated Facility Size (acres):	
40.345088 / -104.432998									

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

Overall good condition

USCS Soil Type:

CL

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

Buried or Partially Buried Vessels

Tank Contents	Size (barrels)	Age	Construction	Visual Integrity	Condition of tank	PID Readings	Condition of PID Readings	Sample taken? Location/Sample ID#	Photo Number(s)	
<i>Produced Water</i>	<i>24</i>		<i>Fiberglass</i>	<i>Good</i>	<i>Good</i>	<i>1.1 - TB-SS-03 e3'</i>	<i>0.5 - TB-SS-04 e3'</i>	<i>LV-SS-01 e3'</i> <i>LV-SS-02 e3'</i> <i>LV-SS-03 e3'</i> <i>LV-SS-04 e3'</i> <i>LV-FS-01 e4.25'</i>	<i>EAGLE provided #4</i>	
						<i>0.7</i>	<i>3.7</i>	<i>0.7</i>	<i>0.9</i>	<i>1.5</i>

Other observations regarding partially buried vessels:

Summary

Was impacted soil identified? No Yes - less than 10 cubic yards Yes - more than 10 cubic yards

Total number of samples field screened: *7* Total number of samples collected: *7*

Highest PID Reading: *3.7 (LV-SS-02 e3')* 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? 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: _____



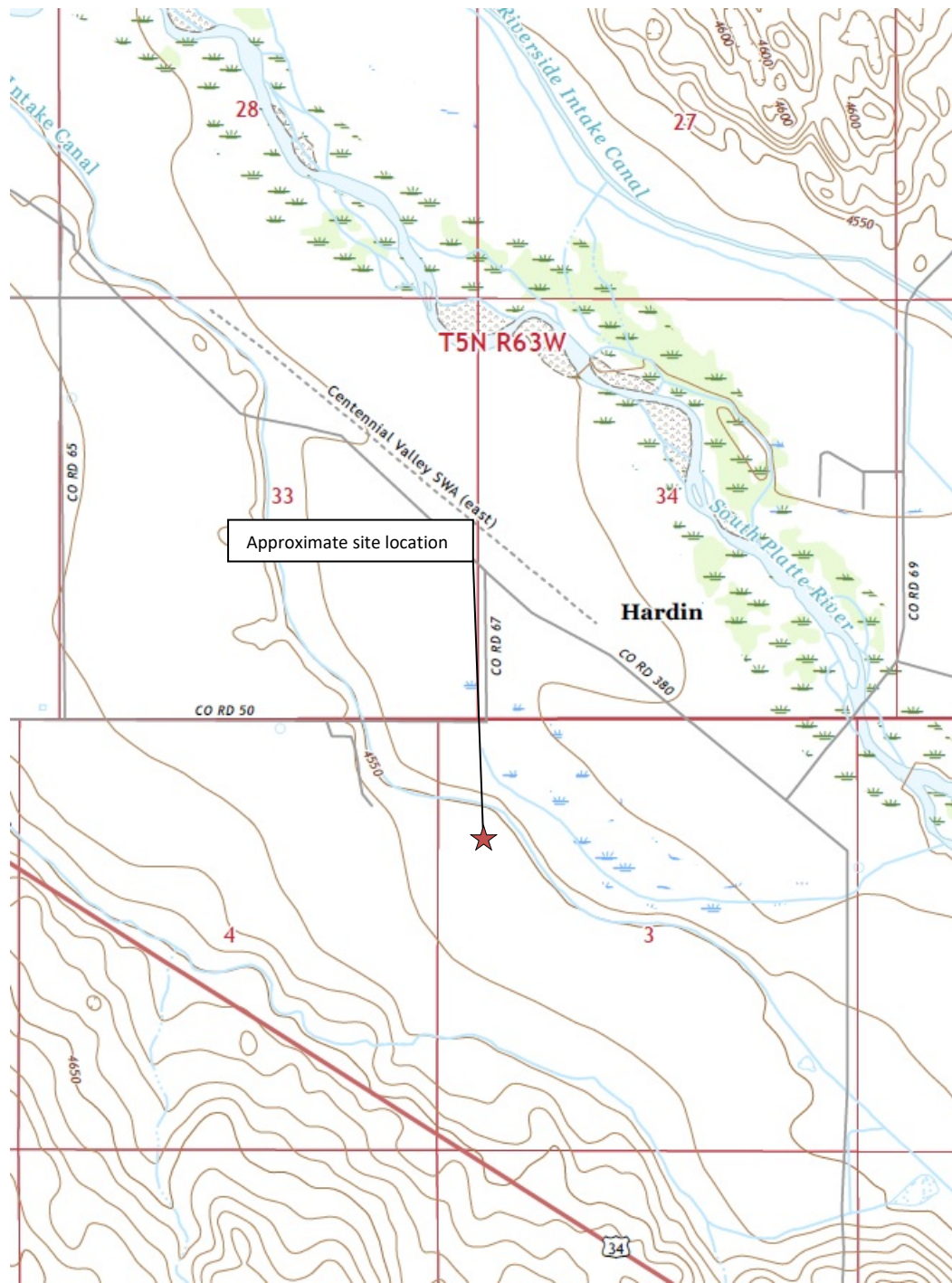
FIGURES

Figure 1: Topographic Site Location Map

Figure 2: Aerial Site Location Map

Figure 3: Soil Analytical Map

Figure 4: Polycyclic Aromatic Hydrocarbons Map



Topographic Site Location Map
 NHF-Laura 4-63-3 SWNW Facility
 Closure Assessment
 40.345083 / -104.433000
 SW1/4 NW1/4 SEC.3 T4N R63W 6PM
 Weld County, Colorado
 Location ID 476919
 Remediation # 18944



EAGLE
 ENVIRONMENTAL
 CONSULTING, INC.

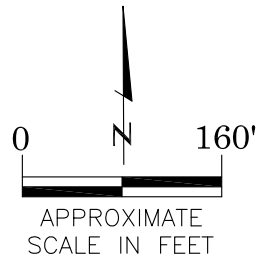
Source: USGS 7.5 Minute Topographic Map, Hardin, CO Quadrangle 2019

Figure 1



LEGEND

- APPROXIMATE FACILITY BOUNDARIES (DECOMMISSIONED)
- APPROXIMATE WELLHEAD (PLUGGED/ABANDONED)
- APPROXIMATE FLOWLINE LOCATION (REMOVED)



AERIAL SITE LOCATION MAP
 NHF-LAURA 4-63-3 SNNW FACILITY
 CLOSURE ASSESSMENT
 40.345083 / -104.433000
 SW1/4 NW1/4 SEC.3 T4N R63W 6PM
 WELD COUNTY, COLORADO
 LOCATION ID 476919
 REMEDIATION # 18944

DATE:
11/02/21

FIG. NO.
2

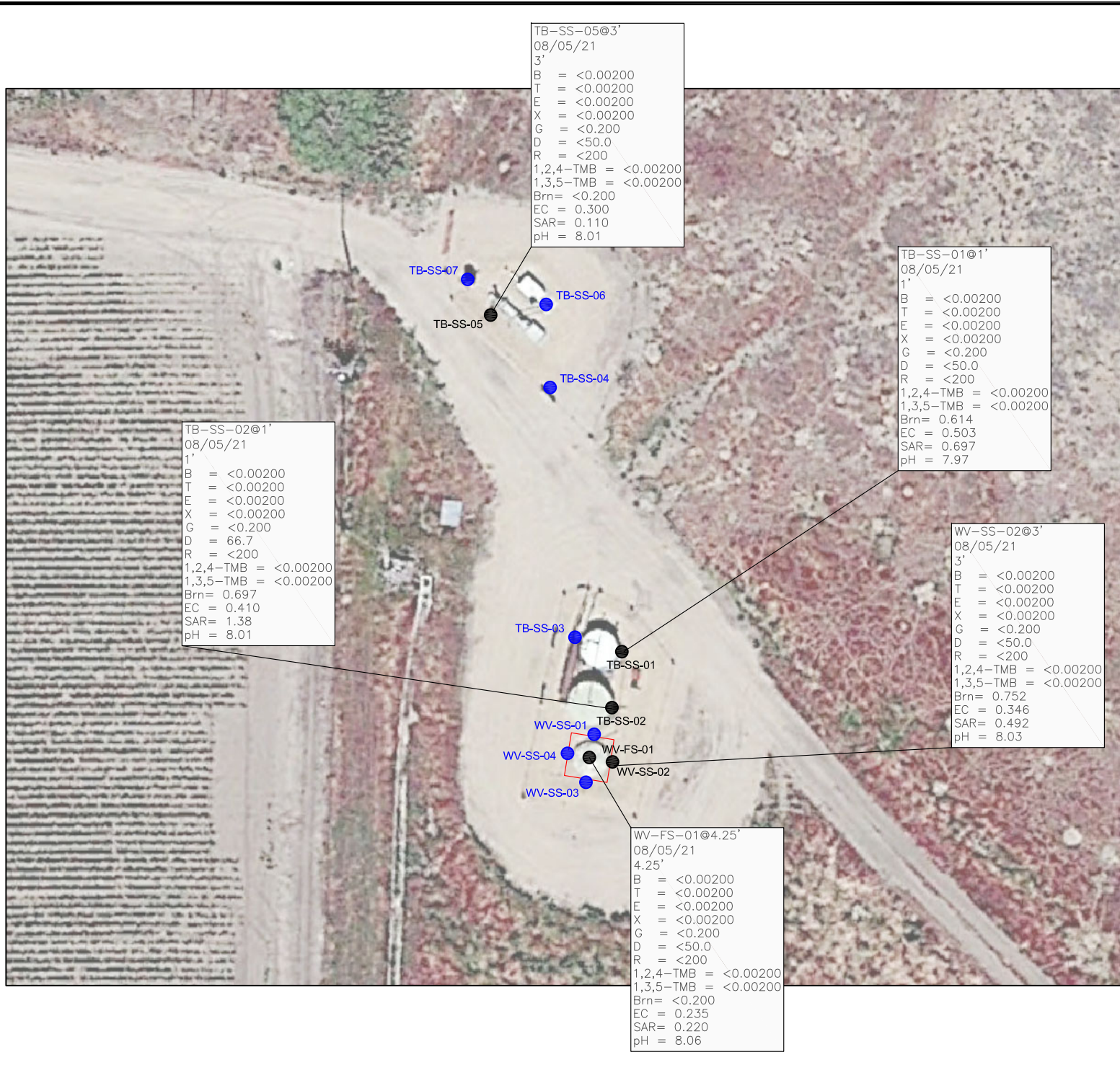
DRAWN BY:
AMN



EAGLE

ENVIRONMENTAL
CONSULTING, INC.

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



TB-SS-05@3'
08/05/21
3'
B = <0.00200
T = <0.00200
E = <0.00200
X = <0.00200
G = <0.200
D = <50.0
R = <200
1,2,4-TMB = <0.00200
1,3,5-TMB = <0.00200
Brn= <0.200
EC = 0.300
SAR= 0.110
pH = 8.01

TB-SS-01@1'
08/05/21
1'
B = <0.00200
T = <0.00200
E = <0.00200
X = <0.00200
G = <0.200
D = <50.0
R = <200
1,2,4-TMB = <0.00200
1,3,5-TMB = <0.00200
Brn= 0.614
EC = 0.503
SAR= 0.697
pH = 7.97

TB-SS-02@1'
08/05/21
1'
B = <0.00200
T = <0.00200
E = <0.00200
X = <0.00200
G = <0.200
D = 66.7
R = <200
1,2,4-TMB = <0.00200
1,3,5-TMB = <0.00200
Brn= 0.697
EC = 0.410
SAR= 1.38
pH = 8.01

WV-SS-02@3'
08/05/21
3'
B = <0.00200
T = <0.00200
E = <0.00200
X = <0.00200
G = <0.200
D = <50.0
R = <200
1,2,4-TMB = <0.00200
1,3,5-TMB = <0.00200
Brn= 0.752
EC = 0.346
SAR= 0.492
pH = 8.03

WV-FS-01@4.25'
08/05/21
4.25'
B = <0.00200
T = <0.00200
E = <0.00200
X = <0.00200
G = <0.200
D = <50.0
R = <200
1,2,4-TMB = <0.00200
1,3,5-TMB = <0.00200
Brn= <0.200
EC = 0.235
SAR= 0.220
pH = 8.06

LEGEND

- INITIAL ASSESSMENT BOUNDARIES
- APPROXIMATE LOCATION OF SOIL SAMPLES FIELD SCREENED WITH PHOTOIONIZATION DETECTOR (PID)
- APPROXIMATE LOCATION OF SOIL SAMPLES SUBMITTED FOR LABORATORY ANALYSIS

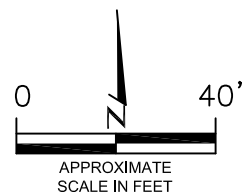
PARAMETERS

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

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

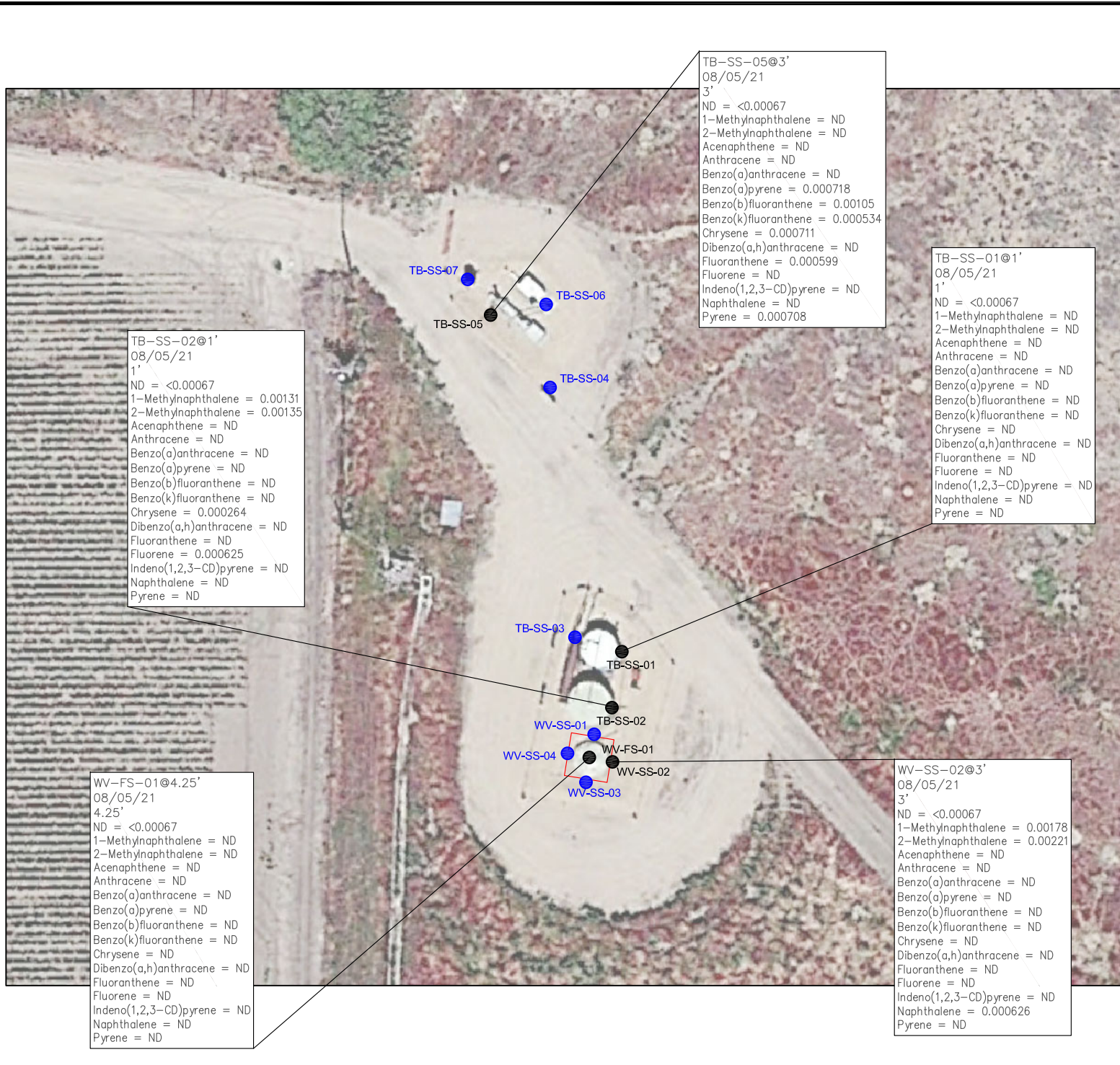
NOTE:
VALUES PRESENTED WITH A LESS THAN SYMBOL (<) DID NOT CONTAIN CONCENTRATIONS AT OR ABOVE LABORATORY REPORTING LIMITS



SOIL ANALYTICAL MAP
NHf-Laura 4-63-3 Swnw Facility
CLOSURE ASSESSMENT
40.345083 / -104.433000
SW1/4 NW1/4 SEC.3 T4N R63W 6PM
WELD COUNTY, COLORADO
LOCATION ID 476919
REMEDATION # 18944

DATE:
11/02/21
DRAWN BY:
AMN
FIG.
NO. 3





LEGEND

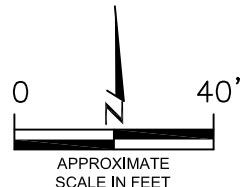
- INITIAL ASSESSMENT BOUNDARIES
- SS-02 APPROXIMATE LOCATION OF SOIL SAMPLES FIELD SCREENED WITH PHOTOIONIZATION DETECTOR (PID)
- SS-02 APPROXIMATE LOCATION OF SOIL SAMPLES SUBMITTED FOR LABORATORY ANALYSIS

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



POLYCYCLIC AROMATIC HYDROCARBONS MAP
 NHF-LAURA 4-63-3 SWNW FACILITY
 CLOSURE ASSESSMENT
 40.345083 / -104.433000
 SW1/4 NW1/4 SEC.3 T4N R63W 6PM
 WELD COUNTY, COLORADO
 LOCATION ID 476919
 REMEDIATION # 18944

DATE:
 11/02/21
 DRAWN BY:
 AMN
 FIG.
 NO. 4

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

TB-SS-05@3'
 08/05/21
 3'
 ND = <0.00067
 1-Methylnaphthalene = ND
 2-Methylnaphthalene = ND
 Acenaphthene = ND
 Anthracene = ND
 Benzo(a)anthracene = ND
 Benzo(a)pyrene = 0.000718
 Benzo(b)fluoranthene = 0.00105
 Benzo(k)fluoranthene = 0.000534
 Chrysene = 0.000711
 Dibenzo(a,h)anthracene = ND
 Fluoranthene = 0.000599
 Fluorene = ND
 Indeno(1,2,3-CD)pyrene = ND
 Naphthalene = ND
 Pyrene = 0.000708

TB-SS-01@1'
 08/05/21
 1'
 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@1'
 08/05/21
 1'
 ND = <0.00067
 1-Methylnaphthalene = 0.00131
 2-Methylnaphthalene = 0.00135
 Acenaphthene = ND
 Anthracene = ND
 Benzo(a)anthracene = ND
 Benzo(a)pyrene = ND
 Benzo(b)fluoranthene = ND
 Benzo(k)fluoranthene = ND
 Chrysene = 0.000264
 Dibenzo(a,h)anthracene = ND
 Fluoranthene = ND
 Fluorene = 0.000625
 Indeno(1,2,3-CD)pyrene = ND
 Naphthalene = ND
 Pyrene = ND

WV-FS-01@4.25'
 08/05/21
 4.25'
 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

WV-SS-02@3'
 08/05/21
 3'
 ND = <0.00067
 1-Methylnaphthalene = 0.00178
 2-Methylnaphthalene = 0.00221
 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 = 0.000626
 Pyrene = ND



TABLES

Table 1: PID Reading Summary

Table 2: Soil Analytical Results Summary

Table 3: PAH Analytical Results Summary

**TABLE 1
PID READING SUMMARY
NHF-LAURA 4-63-3 SWNW FACILITY
CLOSURE ASSESSMENT
40.345083 / -104.433000
SW¼ NW¼ SEC.3 T4N R63W 6PM
WELD COUNTY, COLORADO
LOCATION ID 476919
REMEDIAION # 18944**

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
TB-SS-01 @ 1' (40.345164829 / -104.432957906)	08/05/21	1	2.4	Y
TB-SS-02 @ 1' (40.34513338 / -104.432967954)	08/05/21	1	3.7	Y
TB-SS-03 @ 3' (40.345166538 / -104.433000527)	08/05/21	3	1.1	N
TB-SS-04 @ 3' (40.345370452 / -104.433040345)	08/05/21	3	0.5	N
TB-SS-05 @ 3' (40.345430945 / -104.433097175)	08/05/21	3	0.5	Y
TB-SS-06 @ 0.5' (40.345434053 / -104.433030732)	08/05/21	0.5	0.6	N
TB-SS-07 @ 0.5' (40.345459061 / -104.433121384)	08/05/21	0.5	0.8	N
WV-SS-01 @ 3' (40.345110656 / -104.432990198)	08/05/21	3	0.7	N
WV-SS-02 @ 3' (40.345090198 / -104.43297916)	08/05/21	3	3.7	Y
WV-SS-03 @ 3' (40.345081037 / -104.433003203)	08/05/21	3	0.7	N
WV-SS-04 @ 3' (40.345101554 / -104.433012429)	08/05/21	3	0.9	N
WV-FS-01 @ 4.25' (40.345095915 / -104.432992239)	08/05/21	4.25	1.5	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector				

TABLE 2
 SOIL ANALYTICAL RESULTS SUMMARY
 NHF-LAURA 4-63-3 SWNW FACILITY
 CLOSURE ASSESSMENT
 40.345083 / -104.433000
 SW¼ NW¼ SEC.3 T4N R63W 6PM
 WELD COUNTY, COLORADO
 LOCATION ID 476919
 REMEDIATION # 18944

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-RRO (mg/kg)	1,2,4- Trimethylbenzene (mg/kg)	1,3,5- Trimethylbenzene (mg/kg)	Boron (mg/L)	Specific Conductance (mmhos/cm)	pH (pH units)	SAR
COGCC Table 915-1 Residential Screening Levels				1.2	490	5.8	58	500			30	27	2	<4	6-8.3	<6
COGCC Table 915-1 Protection of Groundwater Soil Screening Levels				0.0026	0.69	0.78	9.9	--			0.0081	0.0087	--	--	--	--
TB-SS-01 @ 1' (40.345164829 / -104.432957906)	08/05/21	1	2.4	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<50.0	<200	<0.00200	<0.00200	0.614	0.503	7.97	0.697
TB-SS-02 @ 1' (40.345133338 / -104.432967954)	08/05/21	1	3.7	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	66.7	<200	<0.00200	<0.00200	0.697	0.410	8.01	1.38
TB-SS-05 @ 3' (40.345430945 / -104.433097175)	08/05/21	3	0.5	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<50.0	<200	<0.00200	<0.00200	<0.200	0.300	8.01	0.110
WV-SS-02 @ 3' (40.345090198 / -104.43297916)	08/05/21	3	3.7	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<50.0	<200	<0.00200	<0.00200	0.752	0.346	8.03	0.492
WV-FS-01 @ 4.25' (40.345095915 / -104.432992239)	08/05/21	4.25	1.5	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<50.0	<200	<0.00200	<0.00200	<0.200	0.235	8.06	0.220
COGCC = Colorado Oil and Gas Conservation Commission mg/kg = milligrams per kilogram TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics mmhos/cm = millimhos per centimeter TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics SAR = Sodium Adsorption Ratio TPH-RRO = Total Petroleum Hydrocarbons - Residual Range Organics ppm-v = parts per million by volume Note: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit. Note: Values presented in BOLD contained concentrations exceeding applicable COGCC Table 915-1 Regulatory Limits Note: Values presented with an asterisk (*) contained concentrations exceeding COGCC Table 915-1 Protection of Groundwater Soil Screening Levels																

TABLE 3
PAH ANALYTICAL RESULTS SUMMARY
NH-F-LAURA 4-63-3 SWNW FACILITY
CLOSURE ASSESSMENT
40.345083 / -104.433000
SW¼ NW¼ SEC.3 T4N R63W 6PM
WELD COUNTY, COLORADO
LOCATION ID 476919
REMEDATION # 18944

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading	1-Methyl- naphthalene (mg/kg)	2-Methyl- naphthalene (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo(a)- anthracene (mg/kg)	Benzo(a)-pyrene (mg/kg)	Benzo(b)- fluoranthene (mg/kg)	Benzo(k)- fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo(a,h)- anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(1,2,3- cd)-pyrene (mg/kg)	Naphthalene (mg/kg)	Pyrene (mg/kg)
COGCC Table 915-1 Residential Screening Levels				18	24	360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	2	180
COGCC Table 915-1 Protection of Groundwater Soil Screening Levels				0.006	0.019	0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	0.0038	1.3
TB-SS-01 @ 1' (40.345164829 / -104.432957906)	08/05/21	1	2.4	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067
TB-SS-02 @ 1' (40.345133338 / -104.432967954)	08/05/21	1	3.7	0.00131	0.00135	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.000264	<0.00067	<0.00067	0.000625	<0.00067	<0.00067	<0.00067
TB-SS-05 @ 3' (40.345430945 / -104.433097175)	08/05/21	3	0.5	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.000718	0.00105	0.000534	0.000711	<0.00067	0.000599	<0.00067	<0.00067	<0.00067	0.000708
WV-SS-02 @ 3' (40.345090198 / -104.43297916)	08/05/21	3	3.7	0.00178	0.00221	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.000626	<0.00067
WV-FS-01 @ 4.25' (40.345095915 / -104.432992239)	08/05/21	4.25	1.5	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067
COGCC = Colorado Oil and Gas Conservation Commission mg/kg = milligrams per kilogram PID = Photoionization Detector Note: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit. Note: Values presented in BOLD contained concentrations exceeding applicable COGCC Table 915-1 Regulatory Limits Note: Values presented with an asterisk (*) contained concentrations exceeding COGCC Table 915-1 Protection of Groundwater Soil Screening Levels																		



ATTACHMENT A

Photo Log

NHF-Laura 4-63-3 SWNW Facility
Location ID 476919
Remediation # 18944

Closure Assessment

August 2021



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



Facility Decommissioning Assessment / Sampling – 08/05/21



← Looking north-northwest

Looking southwest →

Buried vault excavation

No petroleum hydrocarbon staining or odor observed

Samples collected:

WV-SS-01@3' – 0.7 ppm-v

WV-SS-02@3' – 3.7 ppm-v

WV-SS-03@3' – 0.7 ppm-v

WV-SS-04@3' – 0.9 ppm-v

WV-FS-01@4.25' – 1.5 ppm-v



Facility Decommissioning Assessment / Sampling – 08/05/21



← Looking northwest

Production tanks removed/hatches assessed

No petroleum hydrocarbon staining or odor observed

Samples collected:

TB-SS-01@1' – 2.4 ppm-v

TB-SS-02@1' – 3.7 ppm-v

Looking north-northwest →

Dumpline removal trench

No petroleum hydrocarbon staining or odor observed

Sample collected:

TB-SS-03@3' – 1.1 ppm-v



Facility Decommissioning Assessment / Sampling – 08/05/21



← Looking north-northwest

Dumpline removal trench

No petroleum hydrocarbon staining or odor observed

Sample collected:
TB-SS-04@3' – 05 ppm-v

Looking east-southeast →

Flowline at separator connection point

Separator/flowline pulled prior to assessment

No petroleum hydrocarbon staining or odor observed



← Looking east-southeast

Meter house connection

No petroleum hydrocarbon staining or odor observed

TB-SS-06
0.6 ppm-v

TB-SS-05
0.5 ppm-v

Facility Decommissioning Assessment / Sampling – 08/05/21



← Looking east-southeast

Former flare location – removed prior to assessment

No petroleum hydrocarbon staining or odor observed



ATTACHMENT B

Laboratory Analytical Report

August 13, 2021

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

**Project Name - Bonanza - NHF-Laura 4-63-3
SWNW Facility Decommiss**

Project Number - 476919

Attached are your analytical results for Bonanza - NHF-Laura 4-63-3 SWNW Facility Decommiss received by Origins Laboratory, Inc. August 05, 2021. This project is associated with Origins project number Y108108-01.

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: 476919
Project: Bonanza - NHF-Laura 4-63-3 SWNW
Facility Decommiss

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-SS-01@1'	Y108108-01	Soil	August 5, 2021 9:30	08/05/2021 15:40
TB-SS-02@1'	Y108108-02	Soil	August 5, 2021 9:32	08/05/2021 15:40
TB-SS-05@3'	Y108108-03	Soil	August 5, 2021 9:53	08/05/2021 15:40
WV-SS-02@3'	Y108108-04	Soil	August 5, 2021 9:42	08/05/2021 15:40
WV-FS-01@4.25'	Y108108-05	Soil	August 5, 2021 9:40	08/05/2021 15:40

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: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y108108

Client: Eagle

Client Project ID: NHF-Laura 4-63-3

Checklist Completed by: JG

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 8/16/12

Airbill #: N/A

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

Cooler Number/Temperature: 1, 1.4 °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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾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) JM

Date/Time Reviewed 8-9-12

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: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

TB-SS-01@1'
8/5/2021 9:30:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y108108-01 (Soil)

Boron (DTPA Sorbitol)

Boron	0.614		0.198	mg/L	1	B1H0909	08/09/2021	08/12/2021	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		50.0	mg/kg	1	B1H0628	08/06/2021	08/11/2021	U
Residual Range Organics (C28-C40)	ND		200	"	"	"	"	08/11/2021	U

Surrogate: o-Terphenyl	83.5 %		50-150			"	"	08/11/2021	
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GBTEX+TMBs

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B1H0627	08/06/2021	08/09/2021	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	96.5 %		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: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

TB-SS-01@1'
8/5/2021 9:30:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y108108-01 (Soil)

GBTEX+TMBs

Surrogate: Toluene-d8	101 %		70-130			B1H06 27	08/06/2021	08/09/2021	
Surrogate: 4-Bromofluorobenzene	98.9 %		70-130			"	"	"	

Metals by Saturated Paste

Calcium	3.10		0.0499	meq/L	1	[CALC]	08/07/2021	08/07/2021	
Magnesium	1.01		0.0823	"	"	"	"	"	
Sodium	0.999		0.0435	"	"	"	"	"	

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00048	0.00067	mg/Kg	1	L568122	08/09/2021	08/09/2021	
2-Methylnaphthalene	ND	0.000542	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000431	0.00067	"	"	"	"	"	
Anthracene	ND	0.000426	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000441	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000133	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000138	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000486	0.00067	"	"	"	"	"	
Chrysene	ND	0.000256	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000279	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000529	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: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

TB-SS-01@1'
8/5/2021 9:30:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, Inc.
Y108108-01 (Soil)

PAH by 8270D SIM

Fluorene	ND	0.000501	0.00067	mg/Kg	1	L568122	08/09/2021	08/09/2021	
Indeno(1,2,3-cd)pyrene	ND	0.000344	0.00067	"	"	"	"	"	
Naphthalene	ND	0.000467	0.00067	"	"	"	"	"	
Pyrene	ND	0.000387	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	69.1 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	64 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	73.6 %		29-110			"	"	"	

pH in Soil by EPA 9045D

pH	7.97			pH Units	1	B1H0704	08/07/2021	08/07/2021	
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SAR by 20B Saturated Paste

SAR	0.697			SAR	1	B1H0616	08/07/2021	08/07/2021	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.503		0.00500	mmhos/cm	1	B1H0702	08/07/2021	08/07/2021	
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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: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

TB-SS-02@1'
8/5/2021 9:32:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y108108-02 (Soil)

Boron (DTPA Sorbitol)

Boron	0.697		0.199	mg/L	1	B1H0909	08/09/2021	08/12/2021	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	66.7		50.0	mg/kg	1	B1H0628	08/06/2021	08/11/2021	
Residual Range Organics (C28-C40)	ND		200	"	"	"	"	"	U

Surrogate: <i>o</i> -Terphenyl	82.4 %		50-150			"	"	08/11/2021	
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GBTEX+TMBs

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B1H0627	08/06/2021	08/11/2021	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	90.4 %		70-130			"	"	"	
Surrogate: Toluene-d8	112 %		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: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

TB-SS-02@1'
8/5/2021 9:32:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y108108-02 (Soil)

GBTEX+TMBs

Surrogate: 4-Bromofluorobenzene 100 % 70-130 B1H06 27 08/06/2021 08/11/2021

Metals by Saturated Paste

Calcium	2.17	0.0499	meq/L	1	[CALC]	08/07/2021	08/07/2021
Magnesium	0.611	0.0823	"	"	"	"	"
Sodium	1.63	0.0435	"	"	"	"	"

PAH by 8270D SIM

1-Methylnaphthalene	0.00131	0.00048	0.00067	mg/Kg	1	L568122	08/09/2021	08/09/2021
2-Methylnaphthalene	0.00135	0.000542	0.00067	"	"	"	"	"
Acenaphthene	ND	0.000431	0.00067	"	"	"	"	"
Anthracene	ND	0.000426	0.00067	"	"	"	"	"
Benzo(a)anthracene	ND	0.000441	0.00067	"	"	"	"	"
Benzo(a)pyrene	ND	0.000133	0.00067	"	"	"	"	"
Benzo(b)fluoranthene	ND	0.000138	0.00067	"	"	"	"	"
Benzo(k)fluoranthene	ND	0.000486	0.00067	"	"	"	"	"
Chrysene	0.000264	0.000256	0.00067	"	"	"	"	" J
Dibenz(a,h)anthracene	ND	0.000279	0.00067	"	"	"	"	"
Fluoranthene	ND	0.000529	0.00067	"	"	"	"	"
Fluorene	0.000625	0.000501	0.00067	"	"	"	"	" J

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: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

TB-SS-02@1'
8/5/2021 9:32:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, Inc.
Y108108-02 (Soil)

PAH by 8270D SIM

Indeno(1,2,3-cd)pyrene	ND	0.000344	0.00067	mg/Kg	1	L568122	08/09/2021	08/09/2021	
Naphthalene	ND	0.000467	0.00067	"	"	"	"	"	
Pyrene	ND	0.000387	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	68.4 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	59.3 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	65.1 %		29-110			"	"	"	

pH in Soil by EPA 9045D

pH	8.01			pH Units	1	B1H0704	08/07/2021	08/07/2021	
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SAR by 20B Saturated Paste

SAR	1.38			SAR	1	B1H0616	08/07/2021	08/07/2021	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.410		0.00500	mmhos/cm	1	B1H0702	08/07/2021	08/07/2021	
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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: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

TB-SS-05@3'
8/5/2021 9:53:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y108108-03 (Soil)

Boron (DTPA Sorbitol)

Boron	ND		0.200	mg/L	1	B1H0909	08/09/2021	08/12/2021	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		50.0	mg/kg	1	B1H0628	08/06/2021	08/11/2021	U
Residual Range Organics (C28-C40)	ND		200	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 81.5 % 50-150 " " "

GBTEX+TMBs

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B1H0627	08/06/2021	08/09/2021	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 96.2 % 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: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

TB-SS-05@3'
8/5/2021 9:53:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	---------------------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.
Y108108-03 (Soil)

GBTEX+TMBs

Surrogate: Toluene-d8	101 %		70-130			B1H06 27	08/06/2021	08/09/2021	
Surrogate: 4-Bromofluorobenzene	97.9 %		70-130			"	"	"	

Metals by Saturated Paste

Calcium	2.46		0.0499	meq/L	1	[CALC]	08/07/2021	08/07/2021	
Magnesium	0.669		0.0823	"	"	"	"	"	
Sodium	0.137		0.0435	"	"	"	"	"	

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00048	0.00067	mg/Kg	1	L568272	08/10/2021	08/10/2021	
2-Methylnaphthalene	ND	0.000542	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000431	0.00067	"	"	"	"	"	
Anthracene	ND	0.000426	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000441	0.00067	"	"	"	"	"	
Benzo(a)pyrene	0.000718	0.000133	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	0.00105	0.000138	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	0.000534	0.000486	0.00067	"	"	"	"	"	J
Chrysene	0.000711	0.000256	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000279	0.00067	"	"	"	"	"	
Fluoranthene	0.000599	0.000529	0.00067	"	"	"	"	"	J
Fluorene	ND	0.000501	0.00067	"	"	"	"	"	

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

Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

TB-SS-05@3'
8/5/2021 9:53:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, Inc.
Y108108-03 (Soil)

PAH by 8270D SIM

Indeno(1,2,3-cd)pyrene	ND	0.000344	0.00067	mg/Kg	1	L568272	08/10/2021	08/10/2021	
Naphthalene	ND	0.000467	0.00067	"	"	"	"	"	
Pyrene	0.000708	0.000387	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	61.7 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	69.6 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	60.2 %		29-110			"	"	"	

pH in Soil by EPA 9045D

pH	8.01			pH Units	1	B1H0704	08/07/2021	08/07/2021	
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SAR by 20B Saturated Paste

SAR	0.110			SAR	1	B1H0616	08/07/2021	08/07/2021	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.300		0.00500	mmhos/cm	1	B1H0702	08/07/2021	08/07/2021	
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 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

WV-SS-02@3'
8/5/2021 9:42:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y108108-04 (Soil)

Boron (DTPA Sorbitol)

Boron	0.752		0.198	mg/L	1	B1H0909	08/09/2021	08/12/2021	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		50.0	mg/kg	1	B1H0628	08/06/2021	08/11/2021	U
Residual Range Organics (C28-C40)	ND		200	"	"	"	"	"	U

Surrogate: o-Terphenyl	81.1 %		50-150			"	"	"	
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GBTEX+TMBs

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B1H0627	08/06/2021	08/09/2021	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.8 %		70-130			"	"	"	
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Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

WV-SS-02@3'

8/5/2021 9:42:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y108108-04 (Soil)

GBTEX+TMBs

Surrogate: Toluene-d8	101 %		70-130			B1H06 27	08/06/2021	08/09/2021	
Surrogate: 4-Bromofluorobenzene	98.3 %		70-130			"	"	"	

Metals by Saturated Paste

Calcium	2.33		0.0499	meq/L	1	[CALC]	08/07/2021	08/07/2021	
Magnesium	0.640		0.0823	"	"	"	"	"	
Sodium	0.599		0.0435	"	"	"	"	"	

PAH by 8270D SIM

1-Methylnaphthalene	0.00178	0.00048	0.00067	mg/Kg	1	L568272	08/10/2021	08/10/2021	
2-Methylnaphthalene	0.00221	0.000542	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000431	0.00067	"	"	"	"	"	
Anthracene	ND	0.000426	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000441	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000133	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000138	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000486	0.00067	"	"	"	"	"	
Chrysene	ND	0.000256	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000279	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000529	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.



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Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

WV-SS-02@3'

8/5/2021 9:42:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, Inc.
Y108108-04 (Soil)

PAH by 8270D SIM

Fluorene	ND	0.000501	0.00067	mg/Kg	1	L568272	08/10/2021	08/10/2021	
Indeno(1,2,3-cd)pyrene	ND	0.000344	0.00067	"	"	"	"	"	
Naphthalene	0.000626	0.000467	0.00067	"	"	"	"	"	J
Pyrene	ND	0.000387	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	68.5 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	76.5 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	66.1 %		29-110			"	"	"	

pH in Soil by EPA 9045D

pH	8.03			pH Units	1	B1H0704	08/07/2021	08/07/2021	
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SAR by 20B Saturated Paste

SAR	0.492			SAR	1	B1H0616	08/07/2021	08/07/2021	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.346		0.00500	mmhos/cm	1	B1H0702	08/07/2021	08/07/2021	
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Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

WV-FS-01@4.25'
8/5/2021 9:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y108108-05 (Soil)

Boron (DTPA Sorbitol)

Boron	ND		0.200	mg/L	1	B1H0909	08/09/2021	08/12/2021	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		50.0	mg/kg	1	B1H0628	08/06/2021	08/11/2021	U
Residual Range Organics (C28-C40)	ND		200	"	"	"	"	"	U

Surrogate: o-Terphenyl	87.4 %		50-150			"	"	"	
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GBTEX+TMBs

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B1H0627	08/06/2021	08/09/2021	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	95.1 %		70-130			"	"	"	
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Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

WV-FS-01@4.25'
8/5/2021 9:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y108108-05 (Soil)

GBTEX+TMBs

Surrogate: Toluene-d8	101 %		70-130			B1H06 27	08/06/2021	08/09/2021	
Surrogate: 4-Bromofluorobenzene	99.7 %		70-130			"	"	"	

Metals by Saturated Paste

Calcium	3.70		0.0499	meq/L	1	[CALC]	08/07/2021	08/07/2021	
Magnesium	1.64		0.0823	"	"	"	"	"	
Sodium	0.360		0.0435	"	"	"	"	"	

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00048	0.00067	mg/Kg	1	L568272	08/10/2021	08/10/2021	
2-Methylnaphthalene	ND	0.000542	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000431	0.00067	"	"	"	"	"	
Anthracene	ND	0.000426	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000441	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000133	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000138	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000486	0.00067	"	"	"	"	"	
Chrysene	ND	0.000256	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000279	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000529	0.00067	"	"	"	"	"	

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Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

WV-FS-01@4.25'
8/5/2021 9:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, Inc.
Y108108-05 (Soil)

PAH by 8270D SIM

Fluorene	ND	0.000501	0.00067	mg/Kg	1	L568272	08/10/2021	08/10/2021	
Indeno(1,2,3-cd)pyrene	ND	0.000344	0.00067	"	"	"	"	"	
Naphthalene	ND	0.000467	0.00067	"	"	"	"	"	
Pyrene	ND	0.000387	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	63.7 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	66.8 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	60.1 %		29-110			"	"	"	

pH in Soil by EPA 9045D

pH	8.06			pH Units	1	B1H0704	08/07/2021	08/07/2021	
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SAR by 20B Saturated Paste

SAR	0.220			SAR	1	B1H0616	08/07/2021	08/07/2021	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.235		0.00500	mmhos/cm	1	B1H0702	08/07/2021	08/07/2021	
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 8000 W 44th Ave
 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

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 B1H0627 - EPA 5030 (soil)

Blank (B1H0627-BLK1)

Prepared: 08/06/2021 Analyzed: 08/09/2021

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
Naphthalene	ND	0.0100	"							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Toluene	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Xylenes, total	ND	0.00200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125	102		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	101		70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125	100		70-130			

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Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

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 B1H0627 - EPA 5030 (soil)

LCS (B1H0627-BS1)

Prepared: 08/06/2021 Analyzed: 08/09/2021

1,2,4-Trimethylbenzene	0.0503	0.00200	mg/kg	0.0500		101	70-130			
Naphthalene	0.0440	0.0100	"	0.0500		88.0	70-130			
1,3,5-Trimethylbenzene	0.0487	0.00200	"	0.0500		97.3	70-130			
Benzene	0.0433	0.00200	"	0.0500		86.5	70-130			
Ethylbenzene	0.0481	0.00200	"	0.0500		96.2	70-130			
m,p-Xylene	0.103	0.00400	"	0.100		103	70-130			
o-Xylene	0.0484	0.00200	"	0.0500		96.9	70-130			
Toluene	0.0510	0.00200	"	0.0500		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		112	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.7	70-130			

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 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

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 B1H0627 - EPA 5030 (soil)

Matrix Spike (B1H0627-MS1)	Source: Y108107-01			Prepared: 08/06/2021 Analyzed: 08/09/2021						
1,2,4-Trimethylbenzene	0.0575	0.00200	mg/kg	0.0500	0.00176	111	70-130			
Naphthalene	0.0383	0.0100	"	0.0500	0.00362	69.4	70-130			QM-07
1,3,5-Trimethylbenzene	0.0576	0.00200	"	0.0500	0.00110	113	70-130			
Benzene	0.0519	0.00200	"	0.0500	ND	104	70-130			
Ethylbenzene	0.0706	0.00200	"	0.0500	ND	141	70-130			QM-07
m,p-Xylene	0.145	0.00400	"	0.100	0.00124	143	70-130			QM-07
o-Xylene	0.0690	0.00200	"	0.0500	0.000720	137	70-130			QM-07
Toluene	0.0588	0.00200	"	0.0500	ND	118	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		103	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		106	70-130			
Surrogate: 4-Bromofluorobenzene	0.15		"	0.125		116	70-130			

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Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

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 B1H0627 - EPA 5030 (soil)

Matrix Spike Dup (B1H0627-MSD1)	Source: Y108107-01			Prepared: 08/06/2021 Analyzed: 08/09/2021						
1,2,4-Trimethylbenzene	0.0529	0.00200	mg/kg	0.0500	0.00176	102	70-130	8.22	20	
Naphthalene	0.0489	0.0100	"	0.0500	0.00362	90.6	70-130	24.3	20	QR-03
1,3,5-Trimethylbenzene	0.0517	0.00200	"	0.0500	0.00110	101	70-130	10.7	20	
Benzene	0.0532	0.00200	"	0.0500	ND	106	70-130	2.51	20	
Ethylbenzene	0.0571	0.00200	"	0.0500	ND	114	70-130	21.2	20	QR-03
m,p-Xylene	0.119	0.00400	"	0.100	0.00124	118	70-130	19.5	20	
o-Xylene	0.0567	0.00200	"	0.0500	0.000720	112	70-130	19.6	20	
Toluene	0.0561	0.00200	"	0.0500	ND	112	70-130	4.66	20	
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		112	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

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 8000 W 44th Ave
 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

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
Batch B1H0628 - EPA 3550B										
Blank (B1H0628-BLK1)										
					Prepared: 08/06/2021 Analyzed: 08/11/2021					
Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	45		"	50.0		89.2	50-150			

Origins Laboratory, Inc.



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Martin C Eckert III
 Project Number: 476919
 Project: Bonanza - NHF-Laura 4-63-3 SWNW
 Facility Decommiss

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 B1H0628 - EPA 3550B

LCS (B1H0628-BS1)

Prepared: 08/06/2021 Analyzed: 08/11/2021

Diesel (C10-C28)	826	50.0	mg/kg	1000		82.6	70-130			
Residual Range Organics (C28-C40)	948	200	"	1000		94.8	70-130			
Surrogate: o-Terphenyl	45		"	50.0		89.0	50-150			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B1H0628 - EPA 3550B

Matrix Spike (B1H0628-MS1)	Source: Y108107-01			Prepared: 08/06/2021 Analyzed: 08/11/2021						
Diesel (C10-C28)	858	50.0	mg/kg	1000	201	65.7	70-130			QM-07
Residual Range Organics (C28-C40)	1010	200	"	1000	284	72.7	70-130			
Surrogate: o-Terphenyl	45		"	50.0		90.3	50-150			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B1H0628 - EPA 3550B

Matrix Spike Dup (B1H0628-MSD1)	Source: Y108107-01			Prepared: 08/06/2021 Analyzed: 08/11/2021						
Diesel (C10-C28)	870	50.0	mg/kg	1000	201	66.9	70-130	1.34	35	QM-07
Residual Range Organics (C28-C40)	1020	200	"	1000	284	73.5	70-130	0.854	35	
Surrogate: o-Terphenyl	45		"	50.0		90.1	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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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 B1H0702 - NO PREP

Blank (B1H0702-BLK1)

Prepared: 08/07/2021 Analyzed: 08/07/2021

Specific Conductance (EC) 0.00150 0.00500 mmhos/cm

Duplicate (B1H0702-DUP1)

Source: Y108108-01

Prepared: 08/07/2021 Analyzed: 08/07/2021

Specific Conductance (EC) 0.489 0.00500 mmhos/cm

0.503

2.80

25

Batch B1H0704 - NO PREP

Duplicate (B1H0704-DUP1)

Source: Y108108-01

Prepared: 08/07/2021 Analyzed: 08/07/2021

pH 7.89 pH Units

7.97

1.01

25

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L568272 - 3550B

MSD (L 87989-MSD-L568272)		Source: 87989			Prepared: 08/10/2021 Analyzed: 08/10/2021					
Acenaphthene	0.11	0.000431	mg/Kg	0.165	<0.000431	66.6	30-130	0.9	30	
Pyrene	0.113	0.000387	"	0.165	<0.000387	68.4	30-130	0.8	30	
Naphthalene	0.108	0.000467	"	0.165	<0.000467	65.4	30-130	3.6	30	
Benzo(k)fluoranthene	0.108	0.000486	"	0.165	<0.000486	65.4	30-130	7.1	30	
Benzo(b)fluoranthene	0.117	0.000138	"	0.165	<0.000138	70.9	30-130	13.6	30	
Benzo(a)pyrene	0.119	0.000133	"	0.165	<0.000133	72.1	30-130	1.6	30	
Anthracene	0.121	0.000426	"	0.165	<0.000426	73.3	30-130	3.2	30	
Chrysene	0.126	0.000256	"	0.165	<0.000256	76.3	30-130	0	30	
2-Methylnaphthalene	0.105	0.000542	"	0.165	<0.000542	63.6	30-130	0	30	
1-Methylnaphthalene	0.105	0.00048	"	0.165	<0.000480	63.6	30-130	1.8	30	
Indeno(1,2,3-cd)pyrene	0.115	0.000344	"	0.165	<0.000344	69.6	30-130	4.4	30	
Fluorene	0.109	0.000501	"	0.165	<0.000501	66	30-130	0.9	30	
Fluoranthene	0.116	0.000529	"	0.165	<0.000529	70.3	30-130	1.7	30	
Dibenz(a,h)anthracene	0.129	0.000279	"	0.165	<0.000279	78.1	30-130	3.1	30	
Benzo(a)anthracene	0.129	0.000441	"	0.165	<0.000441	78.1	30-130	0	30	
Surrogate: Nitrobenzene-d5	61.8		"	0.33	178	61.8	29-110			
Surrogate: 4-Terphenyl-d14	69.3		"	0.33	204	69.3	33-122			
Surrogate: 2-Fluorobiphenyl	66		"	0.33	183	66	33-115			

MS (L 87989-MS-L568272)		Source: 87989			Prepared: 08/10/2021 Analyzed: 08/10/2021					
2-Methylnaphthalene	0.105	0.000542	mg/Kg	0.164	<0.000542	64	30-130			
Fluorene	0.108	0.000501	"	0.164	<0.000501	65.8	30-130			
1-Methylnaphthalene	0.107	0.00048	"	0.164	<0.000480	65.2	30-130			
Acenaphthene	0.109	0.000431	"	0.164	<0.000431	66.4	30-130			
Fluoranthene	0.118	0.000529	"	0.164	<0.000529	71.9	30-130			
Anthracene	0.125	0.000426	"	0.164	<0.000426	76.2	30-130			
Indeno(1,2,3-cd)pyrene	0.11	0.000344	"	0.164	<0.000344	67	30-130			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L568272 - 3550B

MS (L 87989-MS-L568272)	Source: 87989		Prepared: 08/10/2021 Analyzed: 08/10/2021							
Naphthalene	0.112	0.000467	mg/Kg	0.164	<0.000467	68.2	30-130			
Benzo(a)pyrene	0.121	0.000133	"	0.164	<0.000133	73.7	30-130			
Benzo(b)fluoranthene	0.102	0.000138	"	0.164	<0.000138	62.1	30-130			
Benzo(k)fluoranthene	0.116	0.000486	"	0.164	<0.000486	70.7	30-130			
Chrysene	0.126	0.000256	"	0.164	<0.000256	76.8	30-130			
Dibenz(a,h)anthracene	0.125	0.000279	"	0.164	<0.000279	76.2	30-130			
Pyrene	0.114	0.000387	"	0.164	<0.000387	69.5	30-130			
Benzo(a)anthracene	0.129	0.000441	"	0.164	<0.000441	78.6	30-130			
Surrogate: 2-Fluorobiphenyl	68.3		"	0.329	183	68.3	33-115			
Surrogate: 4-Terphenyl-d14	70.8		"	0.329	204	70.8	33-122			
Surrogate: Nitrobenzene-d5	62.9		"	0.329	178	62.9	29-110			

LCS (LCS-L568272)	Prepared: 08/10/2021 Analyzed: 08/10/2021									
Dibenz(a,h)anthracene	0.131	0.000279	mg/Kg	0.167		78.4	30-130			
Anthracene	0.126	0.000426	"	0.167		75.4	30-130			
1-Methylnaphthalene	0.109	0.00048	"	0.167		65.2	30-130			
Fluorene	0.113	0.000501	"	0.167		67.6	30-130			
Acenaphthene	0.114	0.000431	"	0.167		68.2	30-130			
Benzo(a)anthracene	0.128	0.000441	"	0.167		76.6	30-130			
Benzo(a)pyrene	0.12	0.000133	"	0.167		71.8	30-130			
Benzo(b)fluoranthene	0.117	0.000138	"	0.167		70	30-130			
Benzo(k)fluoranthene	0.111	0.000486	"	0.167		66.4	30-130			
2-Methylnaphthalene	0.108	0.000542	"	0.167		64.6	30-130			
Fluoranthene	0.12	0.000529	"	0.167		71.8	30-130			
Indeno(1,2,3-cd)pyrene	0.124	0.000344	"	0.167		74.2	30-130			
Naphthalene	0.112	0.000467	"	0.167		67	30-130			
Pyrene	0.118	0.000387	"	0.167		70.6	30-130			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L568272 - 3550B

LCS (LCS-L568272)

Prepared: 08/10/2021 Analyzed: 08/10/2021

Chrysene	0.128	0.000256	mg/Kg	0.167		76.6	30-130			
Surrogate: 2-Fluorobiphenyl	73.5		"	0.333		73.5	33-115			
Surrogate: Nitrobenzene-d5	65.7		"	0.333		65.7	29-110			
Surrogate: 4-Terphenyl-d14	75.9		"	0.333		75.9	33-122			

LRB (LRB-L568272)

Prepared: 08/10/2021 Analyzed: 08/10/2021

Benzo(a)pyrene	ND	0.00067	mg/Kg				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Chrysene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Pyrene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	62.4		"	0.333		62.4	29-110			
Surrogate: 4-Terphenyl-d14	71.1		"	0.333		71.1	33-122			
Surrogate: 2-Fluorobiphenyl	73.2		"	0.333		73.2	33-115			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L568122 - 3550B

MSD (L 87606-MSD-L568122)		Source: 87606			Prepared: 08/09/2021 Analyzed: 08/09/2021					
Pyrene	0.114	0.000387	mg/Kg	0.165	<0.000387	69	30-130	1.7	30	
Naphthalene	0.108	0.000467	"	0.165	<0.000467	65.4	30-130	0.9	30	
Indeno(1,2,3-cd)pyrene	0.101	0.000344	"	0.165	<0.000344	61.2	30-130	2.6	30	
Fluoranthene	0.113	0.000529	"	0.165	<0.000529	68.4	30-130	2.6	30	
Dibenz(a,h)anthracene	0.107	0.000279	"	0.165	<0.000279	64.8	30-130	5.4	30	
Chrysene	0.131	0.000256	"	0.165	0.000567	79.3	30-130	0	30	
Benzo(b)fluoranthene	0.0904	0.000138	"	0.165	<0.000138	54.7	30-130	6.2	30	
Benzo(a)pyrene	0.117	0.000133	"	0.165	0.000233	70.9	30-130	5	30	
Benzo(a)anthracene	0.122	0.000441	"	0.165	<0.000441	73.9	30-130	5.5	30	
1-Methylnaphthalene	0.109	0.00048	"	0.165	0.000602	66	30-130	0	30	
Anthracene	0.121	0.000426	"	0.165	<0.000426	73.3	30-130	4	30	
Acenaphthene	0.103	0.000431	"	0.165	<0.000431	62.4	30-130	0	30	
2-Methylnaphthalene	0.111	0.000542	"	0.165	0.000732	66.8	30-130	2.7	30	
Benzo(k)fluoranthene	0.0861	0.000486	"	0.165	<0.000486	52.1	30-130	1	30	
Fluorene	0.115	0.000501	"	0.165	0.000594	69.6	30-130	0.8	30	
Surrogate: Nitrobenzene-d5	66		"	0.33	213	66	29-110			
Surrogate: 4-Terphenyl-d14	65.4		"	0.33	181	65.4	33-122			
Surrogate: 2-Fluorobiphenyl	67.8		"	0.33	197	67.8	33-115			

MS (L 87606-MS-L568122)		Source: 87606			Prepared: 08/09/2021 Analyzed: 08/09/2021					
1-Methylnaphthalene	0.109	0.00048	mg/Kg	0.164	0.000602	66.4	30-130			
Chrysene	0.131	0.000256	"	0.164	0.000567	79.8	30-130			
Benzo(b)fluoranthene	0.0962	0.000138	"	0.164	<0.000138	58.6	30-130			
Benzo(a)anthracene	0.129	0.000441	"	0.164	<0.000441	78.6	30-130			
Anthracene	0.126	0.000426	"	0.164	<0.000426	76.8	30-130			
Acenaphthene	0.103	0.000431	"	0.164	<0.000431	62.8	30-130			
Dibenz(a,h)anthracene	0.113	0.000279	"	0.164	<0.000279	68.9	30-130			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L568122 - 3550B

MS (L 87606-MS-L568122)	Source: 87606		Prepared: 08/09/2021 Analyzed: 08/09/2021							
Benzo(k)fluoranthene	0.087	0.000486	mg/Kg	0.164	<0.000486	53	30-130			
2-Methylnaphthalene	0.108	0.000542	"	0.164	0.000732	65.4	30-130			
Fluorene	0.114	0.000501	"	0.164	0.000594	69.5	30-130			
Indeno(1,2,3-cd)pyrene	0.0984	0.000344	"	0.164	<0.000344	60	30-130			
Naphthalene	0.109	0.000467	"	0.164	<0.000467	66.4	30-130			
Pyrene	0.116	0.000387	"	0.164	<0.000387	70.7	30-130			
Fluoranthene	0.116	0.000529	"	0.164	<0.000529	70.7	30-130			
Benzo(a)pyrene	0.123	0.000133	"	0.164	0.000233	75	30-130			
Surrogate: 4-Terphenyl-d14	68.2		"	0.328	181	68.2	33-122			
Surrogate: 2-Fluorobiphenyl	66.4		"	0.328	197	66.4	33-115			
Surrogate: Nitrobenzene-d5	66.7		"	0.328	213	66.7	29-110			

LCS (LCS-L568122)	Prepared: 08/09/2021 Analyzed: 08/09/2021									
Dibenz(a,h)anthracene	0.0932	0.000279	mg/Kg	0.167		55.8	30-130			
Naphthalene	0.113	0.000467	"	0.167		67.6	30-130			
Indeno(1,2,3-cd)pyrene	0.079	0.000344	"	0.167		47.3	30-130			
Pyrene	0.111	0.000387	"	0.167		66.4	30-130			
Fluoranthene	0.114	0.000529	"	0.167		68.2	30-130			
Chrysene	0.133	0.000256	"	0.167		79.6	30-130			
Fluorene	0.117	0.000501	"	0.167		70	30-130			
1-Methylnaphthalene	0.113	0.00048	"	0.167		67.6	30-130			
2-Methylnaphthalene	0.114	0.000542	"	0.167		68.2	30-130			
Acenaphthene	0.112	0.000431	"	0.167		67	30-130			
Anthracene	0.125	0.000426	"	0.167		74.8	30-130			
Benzo(a)anthracene	0.13	0.000441	"	0.167		77.8	30-130			
Benzo(a)pyrene	0.123	0.000133	"	0.167		73.6	30-130			
Benzo(b)fluoranthene	0.0783	0.000138	"	0.167		46.8	30-130			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L568122 - 3550B

LCS (LCS-L568122)

Prepared: 08/09/2021 Analyzed: 08/09/2021

Benzo(k)fluoranthene	0.0854	0.000486	mg/Kg	0.167		51.1	30-130			
Surrogate: Nitrobenzene-d5	75		"	0.333		75	29-110			
Surrogate: 2-Fluorobiphenyl	75.6		"	0.333		75.6	33-115			
Surrogate: 4-Terphenyl-d14	68.7		"	0.333		68.7	33-122			

LRB (LRB-L568122)

Prepared: 08/09/2021 Analyzed: 08/09/2021

1-Methylnaphthalene	ND	0.00067	mg/Kg				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
Pyrene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	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	"				-			
Chrysene	ND	0.00067	"				-			
Surrogate: 4-Terphenyl-d14	65.4		"	0.333		65.4	33-122			
Surrogate: 2-Fluorobiphenyl	71.1		"	0.333		71.1	33-115			
Surrogate: Nitrobenzene-d5	69.9		"	0.333		69.9	29-110			

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Martin C Eckert III
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Project: Bonanza - NHF-Laura 4-63-3 SWNW
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Notes and Definitions

U Sample is Non-Detect.

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

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.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

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.