

## Wellhead Closure Checklist

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

Additional attachments (optional):		Pit Closure	Tank Battery Closure 5-27-21	Flowline Closure 6/18 + 6/23	Partially Buried Vault Closure 5-29-21
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Site Name & COGCC Facility Number: North Platte 22-24 Date: 6-8-21 Remediation Project #: 17890

Associated Wells: 1 Age of Site: ~13 years - Spud 9/22/2008 Number of Photos Attached: 2  
05-123-25828

Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) 40.38647 / -104.38708 Estimated Facility Size (acres):

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

USCS Soil Type: SM Estimated Depth to Groundwater: ~15-20'

Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  
None observed

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)  
None observed

Wellhead(s)						
Well API	05-123-25828					
Age	~13 years					
Condition of surface around wellhead	Good - Per Crew					
PID Readings	N/A - Excavated upon arrival					
Condition of subsurface (staining present)	Good - no staining / no odor					
PID Readings	4.5	2.2	1.8	3.6	6.1	
Sample taken? Location/Sample ID#	LWH-SS-01 @ 3.5'	LWH-SS-02 @ 3.5'	LWH-SS-03 @ 3.5'	LWH-SS-04 @ 3.5'	LWH-SS-01 @ 3.5'	
Photo Number(s)	EAGLE provided 2					

Other observations regarding wellheads:  
Flowline assessment @ later date

### Summary

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

Total number of samples field screened: 5 Total number of samples collected: 5

Highest PID Reading: 6.1 Total number of samples submitted to lab for analysis: 1

If more than 10 cubic yards of impacted soil were observed:

Vertical extent: N/A Estimated spill volume:

Lateral extent: N/A Volume of soil removed:

Is additional investigation required?

Was groundwater encountered during the investigation? (No) Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils

Measured depth to groundwater: Was remedial groundwater removal conducted? Yes No

Date Groundwater was encountered: Commencement date of removal:

Sheen on groundwater? Yes No Volume of groundwater removed prior to sampling:

Free product observed? Yes No Volume of groundwater removed post sampling:

Total number of samples collected: Total Volume of groundwater removed:

Total number of samples submitted to lab for analysis:

## Flowline Closure Checklist

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

Additional Attachments:	Tank Battery Closure 5-27-21	Wellhead Closure 6-8-21	Pit Closure	Partially Buried Vault Closure 5-27-21
Site Name & COGCC Facility Number: <i>North Platte 22-24</i>		Date: <i>6-18-21 + 6-23-21</i>		Remediation Project #: <i>17890</i>
Associated Wells: <i>1</i> <i>05-123-25828</i>		Age of Site: <i>~13 years</i>		Number of Photos Attached: <i>5</i>

Starting point: (GPS coordinates and descriptions) *At Well: 40.386470 / -104.387080*

End point: (GPS coordinates and descriptions) *At Sep: 40.389268 / -104.388042*

USCS Soil Type: *Sm* Estimated Depth to Groundwater: *~15-20'*

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*

### Flowlines

Flowline type	<i>O, G, W</i>				
Depth	<i>~3-4'</i>				
Age	<i>~13 years</i>				
Length	<i>~1075</i>				
Construction Material	<i>Steel</i>				
Were flowlines pulled?	<i>Yes</i>				
Visual Integrity of lines	<i>Good</i>				
Visual impacts if trenched	<i>N/A - bellholed/pulled</i>				
PID Readings if trenched	<i>0.8</i>	<i>1.2</i>	<i>3.1</i>	<i>0.6</i>	<i>0.9</i>
Sample taken? Location/Sample ID#	<i>FL-SS-01 @ 3'</i>	<i>FL-SS-02 @ 3.5'</i>	<i>FL-SS-03 @ 4'</i>	<i>FL-SS-04 @ 3.5'</i>	<i>FL-SS-05 @ 3'</i>
Photo Number(s)	<i>ENGLE provided 5</i>				

Other observations regarding on location flowlines:  
*FL-SS-01 (log submitted) collected in same location/in conjunction w/ NP 11-24 flowline (Rem. # 17834)*

### 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:		<i>5</i>		Total number of samples collected: <i>5</i>
Highest PID Reading:		<i>3.1</i>		Total number of samples submitted to lab for analysis: <i>1</i>
If more than 10 cubic yards of impacted soil were observed:				
Vertical extent:		<i>N/A</i>		Estimated spill volume:
Lateral extent:		<i>N/A</i>		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:				



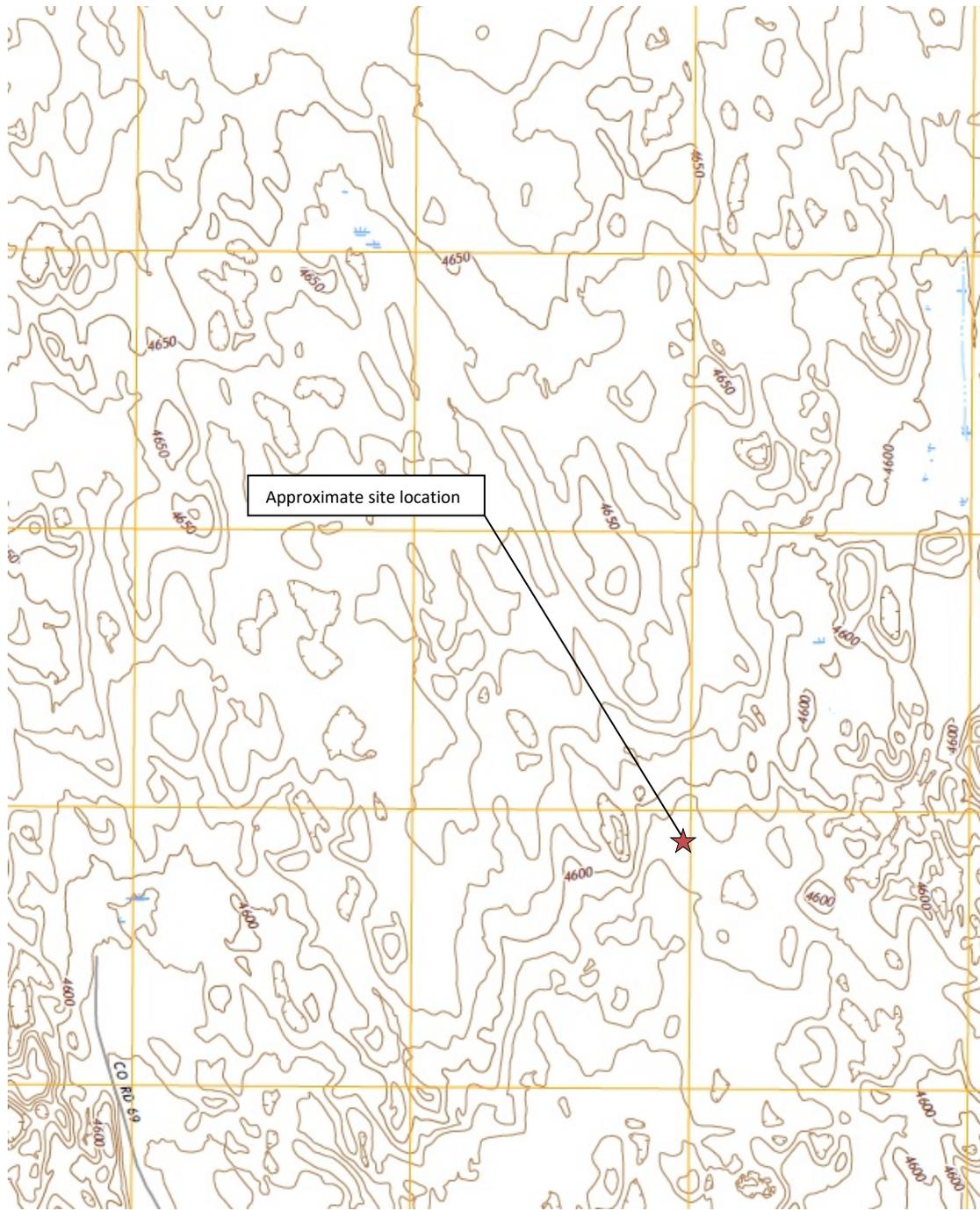
## **FIGURES**

**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**  
 North Platte 22-24  
 Closure Assessment  
 40.386470 / -104.387080  
 SE¼ NW¼ SEC.24 T5N R63W 6PM  
 Weld County, Colorado  
 API # 05-123-25828  
 Remediation # 17890



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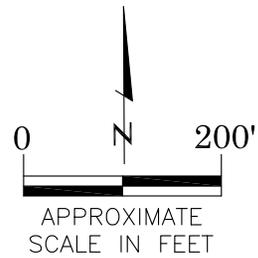
Source: USGS 7.5 Minute Topographic Map, Barnesville, CO Quadrangle 2019

**Figure 1**



LEGEND

- FORMER NORTH PLATTE 22-24 WELL HEAD (PLUGGED/ABANDONED)
- APPROXIMATE FLOW LINE LOCATION (REMOVED)
- ASSOCIATED SEPARATOR (DECOMMISSIONED)



AERIAL SITE LOCATION MAP  
 NORTH PLATTE 22-24  
 CLOSURE ASSESSMENT  
 40.386470 / -104.387080  
 SE¼ NW¼ SEC.24 T5N R63W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-25828  
 REMEDIATION # 17890

DATE:  
09/10/21

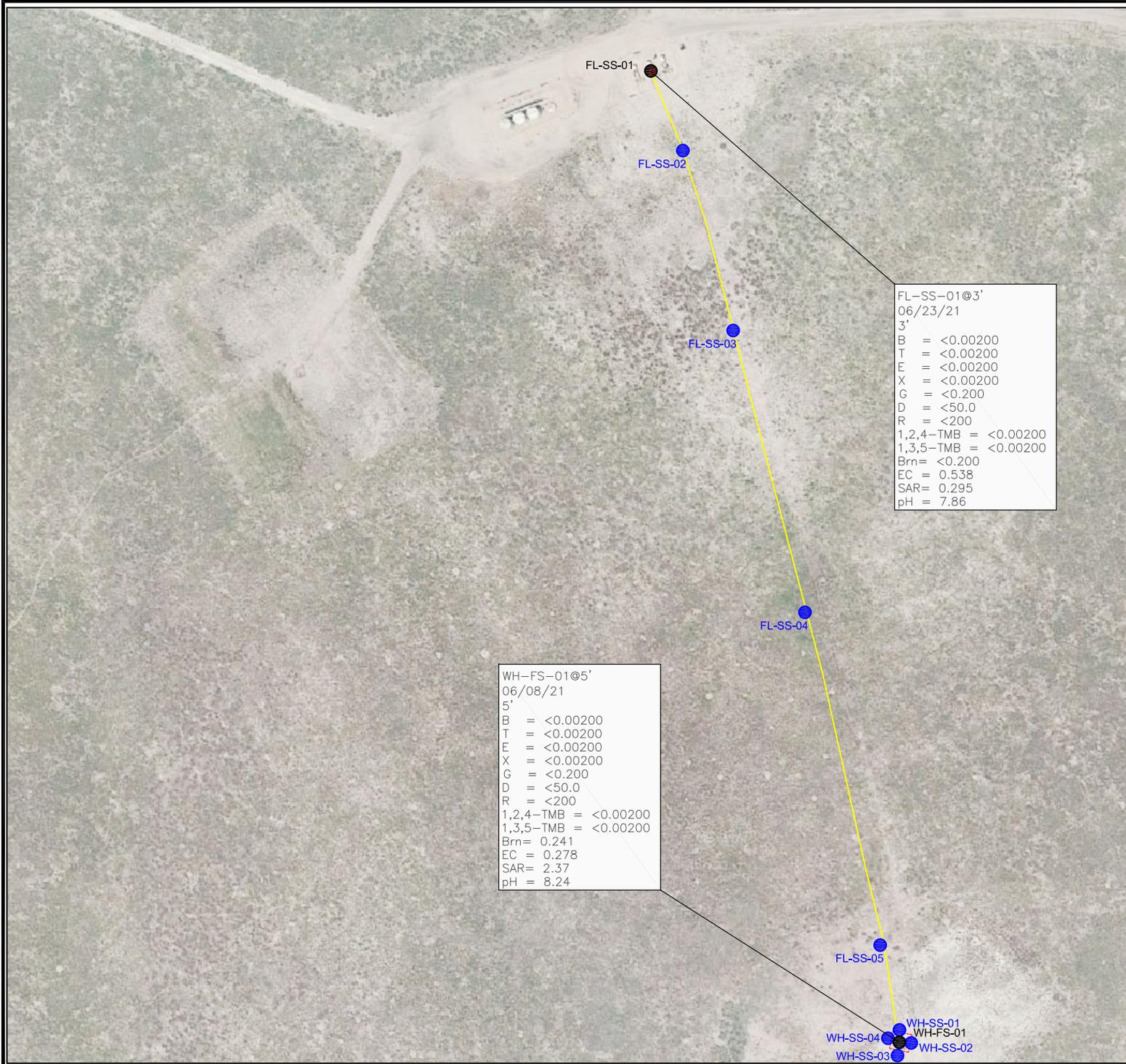
FIG. NO.  
2

DRAWN BY:  
AMN



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



WH-FS-01@5'  
06/08/21  
5'  
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= 0.241  
EC = 0.278  
SAR= 2.37  
pH = 8.24

FL-SS-01@3'  
06/23/21  
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 = 0.538  
SAR= 0.295  
pH = 7.86

**LEGEND**

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

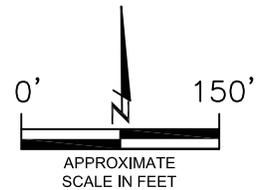
**PARAMETERS**

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 DETECTION LIMITS



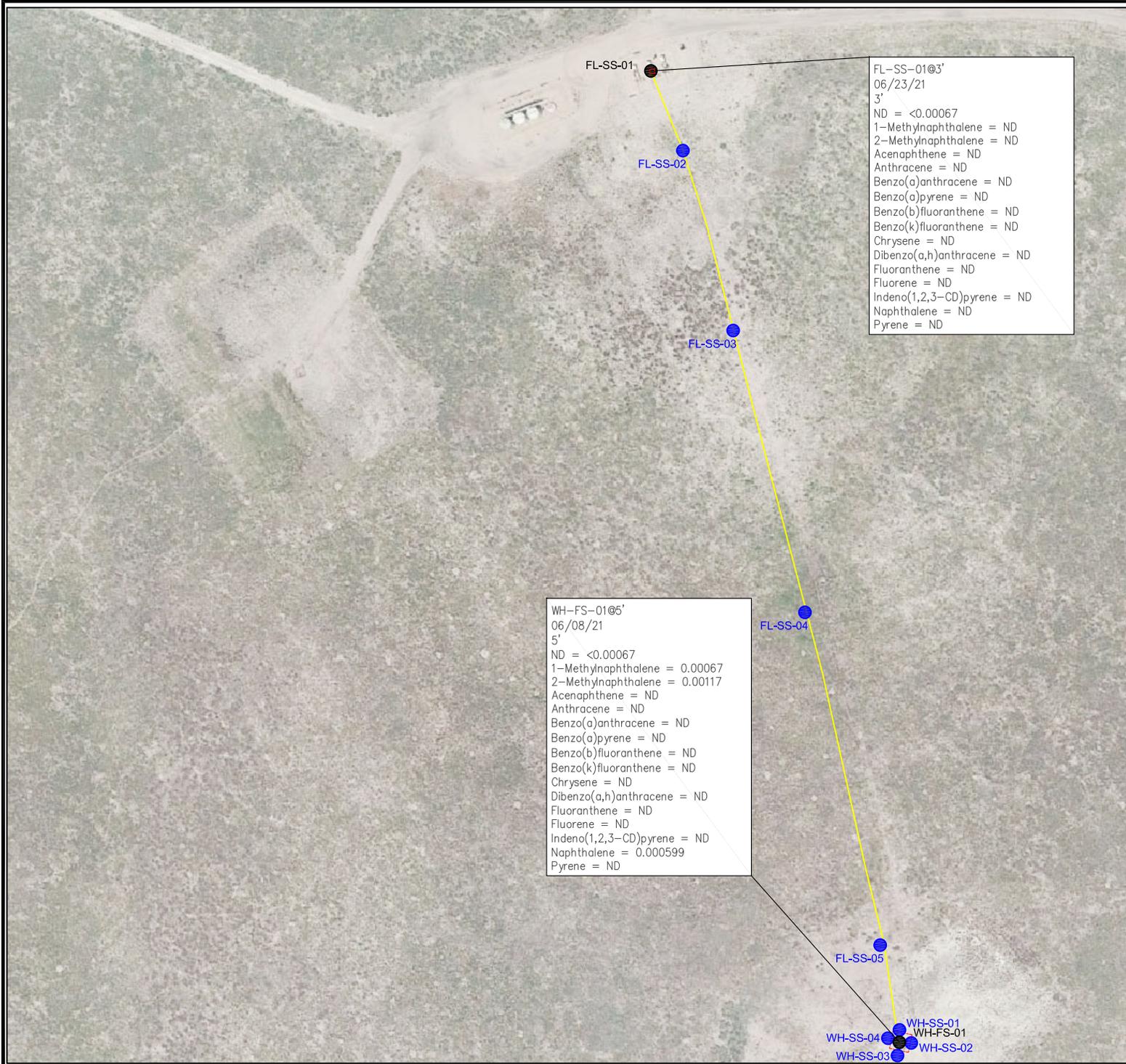
SOIL ANALYTICAL MAP  
NORTH PLATTE 22-24  
CLOSURE ASSESSMENT  
40.386470 / -104.387080  
SE¼ NW¼ SEC.24 T5N R63W 6PM  
WELD COUNTY, COLORADO  
API # 05-123-25828  
REMEDATION # 17890

DATE:  
09/10/21  
DRAWN BY:  
AMN

FIG.  
NO. 3



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FL-SS-01@3'  
 06/23/21  
 3'  
 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  
 Chrysenes = ND  
 Dibenzo(a,h)anthracene = ND  
 Fluoranthene = ND  
 Fluorene = ND  
 Indeno(1,2,3-CD)pyrene = ND  
 Naphthalene = ND  
 Pyrene = ND

WH-FS-01@5'  
 06/08/21  
 5'  
 ND = <0.00067  
 1-Methylnaphthalene = 0.00067  
 2-Methylnaphthalene = 0.00117  
 Acenaphthene = ND  
 Anthracene = ND  
 Benzo(a)anthracene = ND  
 Benzo(a)pyrene = ND  
 Benzo(b)fluoranthene = ND  
 Benzo(k)fluoranthene = ND  
 Chrysenes = ND  
 Dibenzo(a,h)anthracene = ND  
 Fluoranthene = ND  
 Fluorene = ND  
 Indeno(1,2,3-CD)pyrene = ND  
 Naphthalene = 0.000599  
 Pyrene = ND

**LEGEND**

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

**PARAMETERS**

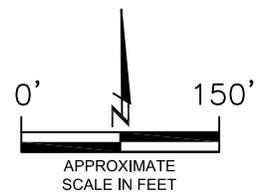
SAMPLE LOCATION  
 DATE SAMPLE COLLECTED  
 APPROXIMATE DEPTH  
 POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

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 REPORTING LIMITS



POLYCYCLIC AROMATIC HYDROCARBONS MAP

NORTH PLATTE 22-24  
 CLOSURE ASSESSMENT  
 40.386470 / -104.387080  
 SE¼ NW¼ SEC.24 T5N R63W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-25828  
 REMEDIATION # 17890

DATE:  
 09/10/21  
 DRAWN BY:  
 AMN  
 FIG.  
 NO. 4



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## **TABLES**

**Table 1: PID Reading Summary**

**Table 2: Soil Analytical Results Summary**

**Table 3: PAH Analytical Results Summary**

**TABLE 1  
PID READING SUMMARY  
NORTH PLATTE 22-24  
CLOSURE ASSESSMENT  
40.386470 / -104.387080  
SE¼ NW¼ SEC.24 T5N R63W 6PM  
WELD COUNTY, COLORADO  
API # 05-123-25828  
REMEDATION # 17890**

<b>Sample Location</b> (Latitude/Longitude)	<b>Date</b>	<b>Approximate Depth</b> (feet)	<b>PID Reading</b> (ppm-v)	<b>Lab Submission</b> (Y/N)
WH-SS-01 @ 3.5' (40.386482 / -104.387104)	06/08/21	3.5	4.5	N
WH-SS-02 @ 3.5' (40.386462 / -104.387092)	06/08/21	3.5	2.2	N
WH-SS-03 @ 3.5' (40.386456 / -104.387115)	06/08/21	3.5	1.8	N
WH-SS-04 @ 3.5' (40.386473 / -104.387126)	06/08/21	3.5	3.6	N
WH-FS-01 @ 5' (40.386465 / -104.387108)	06/08/21	5	6.1	Y
*FL-SS-01 @ 3' (40.389268 / -104.388042)	06/23/21	3	0.8	Y
FL-SS-02 @ 3.5' (40.389023 / -104.387943)	06/18/21	3.5	1.2	N
FL-SS-03 @ 4' (40.388516 / -104.387773)	06/18/21	4	3.1	N
FL-SS-04 @ 3.5' (40.387553 / -104.387409)	06/18/21	3.5	2.6	N
FL-SS-05 @ 3' (40.386728 / -104.387154)	06/18/21	3	0.9	N
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector		*Sample collected in same location/in-conjunction with flowline removal assessment associated with the North Platte 11-24 wellhead/flowline (Rem. # 17884)		

TABLE 2  
SOIL ANALYTICAL RESULTS SUMMARY  
NORTH PLATTE 22-24  
CLOSURE ASSESSMENT  
40.386470 / -104.387080  
SE¼ NW¼ SEC.24 T5N R63W 6PM  
WELD COUNTY, COLORADO  
API # 05-123-25828  
REMEDIAION # 17890

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
<b>COGCC Table 915-1 Residential Screening Levels</b>				<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>500</b>			<b>30</b>	<b>27</b>	<b>2</b>	<b>&lt;4</b>	<b>6-8.3</b>	<b>&lt;6</b>
<b>COGCC Table 915-1 Protection of Groundwater Soil Screening Levels</b>				<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>--</b>			<b>0.0081</b>	<b>0.0087</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
WH-FS-01 @ 5' (40.386465 / -104.387108)	06/08/21	5	6.1	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<50.0	<200	<0.00200	<0.00200	0.241	0.278	8.24	2.37
FL-SS-01 @ 3' (40.389268 / -104.388042)	06/23/21	3	0.8	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<50.0	<200	<0.00200	<0.00200	<0.200	0.538	7.86	0.295
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 <b>BOLD</b> 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  
NORTH PLATTE 22-24  
CLOSURE ASSESSMENT  
40.386470 / -104.387080  
SE¼ NW¼ SEC.24 T5N R63W 6PM  
WELD COUNTY, COLORADO  
API # 05-123-25828  
REMEDATION # 17890

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)
<b>COGCC Table 915-1 Residential Screening Levels</b>				<b>18</b>	<b>24</b>	<b>360</b>	<b>1,800</b>	<b>1.1</b>	<b>0.11</b>	<b>1.1</b>	<b>11</b>	<b>110</b>	<b>0.11</b>	<b>240</b>	<b>240</b>	<b>1.1</b>	<b>2</b>	<b>180</b>
<b>COGCC Table 915-1 Protection of Groundwater Soil Screening Levels</b>				<b>0.006</b>	<b>0.019</b>	<b>0.55</b>	<b>5.8</b>	<b>0.011</b>	<b>0.24</b>	<b>0.3</b>	<b>2.9</b>	<b>9</b>	<b>0.096</b>	<b>8.9</b>	<b>0.54</b>	<b>0.98</b>	<b>0.0038</b>	<b>1.3</b>
WH-FS-01 @ 5' (40.386465 / -104.387108)	06/08/21	5	6.1	0.00067	0.00117	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.000599	<0.00067
FL-SS-01 @ 3' (40.389268 / -104.388042)	06/23/21	3	0.8	<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 <b>BOLD</b> 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**

North Platte 22-24  
API # 05-123-25828  
Remediation # 17890

Closure Assessment

June 2021



**EAGLE**  
ENVIRONMENTAL  
CONSULTING, INC.  
8000 W 44th Ave, Wheat Ridge, CO 80033  
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# Well Head Decommissioning Assessment / Sampling – 06/08/21



Looking northwest

No petroleum hydrocarbon staining or odor observed

Samples collected:

WH-SS-01@3.5' – 4.5 ppm-v

WH-SS-04@3.5' – 3.6 ppm-v

WH-FS-01@5' – 6.1 ppm-v



Looking southeast

No petroleum hydrocarbon staining or odor observed

Samples collected:

WH-SS-02@3.5' – 2.2 ppm-v

WH-SS-03@3.5' – 1.8 ppm-v

# Flowline Assessment / Sampling – 06/18/21 & 06/23/21



Flowline removal  
Bellholed/pulled prior to assessment  
No petroleum hydrocarbon staining or odor observed  
Screening sample collected: FL-SS-02 @ 3.5' = 1.2 ppm-v



Flowline removal  
Bellholed/pulled prior to assessment  
No petroleum hydrocarbon staining or odor observed  
Screening sample collected: FL-SS-03 @ 4' = 3.1 ppm-v

# Flowline Assessment / Sampling – 06/18/21 & 06/23/21

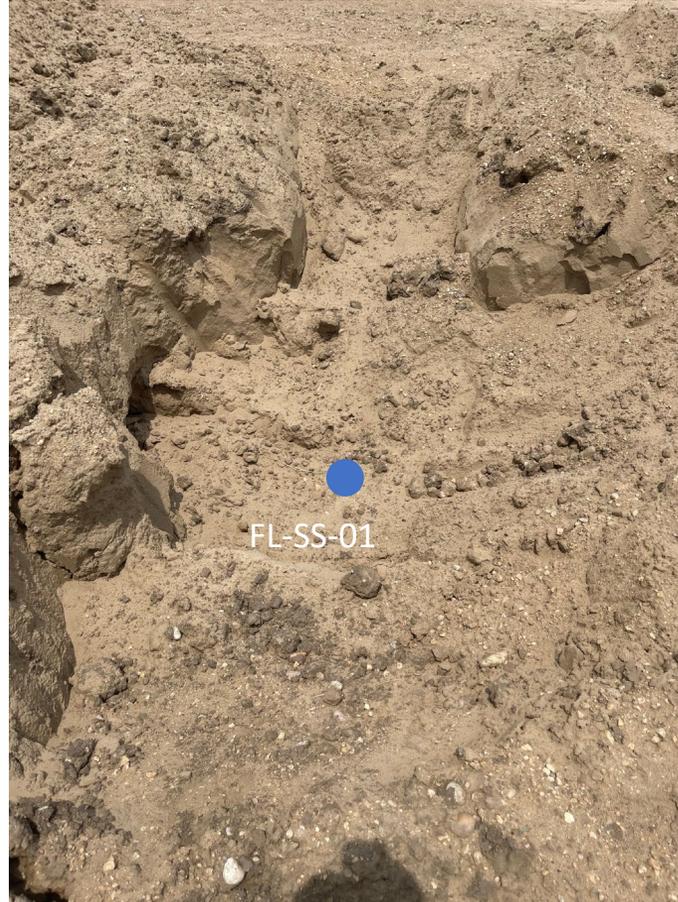


Flowline removal  
Bellholed/pulled prior to assessment  
No petroleum hydrocarbon staining or odor observed  
Screening sample collected: FL-SS-04 @ 3.5' = 2.6 ppm-v



Flowline removal  
Bellholed/pulled prior to assessment  
No petroleum hydrocarbon staining or odor observed  
Screening sample collected: FL-SS-05 @ 3' = 0.9 ppm-v

# Flowline Assessment / Sampling – 06/18/21 & 06/23/21



Flowline removal  
Bellholed/pulled prior to assessment  
No petroleum hydrocarbon staining or odor observed  
Confirmation sample at terminus: FL-SS-01 @ 3' = 0.8 ppm-v



## **ATTACHMENT B**

### **Laboratory Analytical Reports**



June 17, 2021

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

**Project Name - Bonanza - North Platte 22-24  
WH/Flowline Decommiss**

**Project Number - 310066**

Attached are your analytical results for Bonanza - North Platte 22-24 WH/Flowline Decommiss received by Origins Laboratory, Inc. June 09, 2021. This project is associated with Origins project number Y106174-01.

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: 310066  
Project: Bonanza - North Platte 22-24  
WH/Flowline Decommiss

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@5'	Y106174-01	Soil	June 8, 2021 12:28	06/09/2021 07:07

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 Project: Bonanza - North Platte 22-24  
 WH/Flowline Decommiss

Origins Laboratory

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

Origins Work Order: Y100674 Sample Receipt Checklist

Client: Eagle/Bonanza  
 Client Project ID: North Platte 22-24

Checklist Completed by: Jm  
 Date/time completed: 6/19/21

Shipped Via: HD  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: N/A

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

Cooler Number/Temperature: 114 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe)

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> ?	<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) Jm Date/Time Reviewed 6-10-21

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Martin C Eckert III  
 Project Number: 310066  
 Project: Bonanza - North Platte 22-24  
 WH/Flowline Decommiss

**WH-FS-01@5'**  
**6/8/2021 12:28:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y106174-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.241	0.100	mg/L	1	B1F0921	ZZZ	06/09/2021	06/09/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	50.0	mg/kg	1	B1F0911	TEM	06/09/2021	06/10/2021	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	TEM	"	"	U

Surrogate: o-Terphenyl	73.0 %	50-150			"	"	"	"	
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B1F0805	KDK	06/08/2021	06/10/2021	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Benzene	ND	0.00200	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	KDK	"	"	U
Toluene	ND	0.00200	"	"	"	KDK	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.00200	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	78.7 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	70-130			"	"	"	"	

**Metals by Saturated Paste**

Origins Laboratory, Inc.



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 Project Number: 310066  
 Project: Bonanza - North Platte 22-24  
 WH/Flowline Decommiss

**WH-FS-01@5'**  
**6/8/2021 12:28:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y106174-01 (Soil)**

**Metals by Saturated Paste**

Calcium	0.577		meq/L	1	[CALC]	CJM	06/10/2021	06/11/2021	
Magnesium	0.288		"	"	"	CJM	"	"	
Sodium	1.56		"	"	"	CJM	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	0.00067	0.00067	mg/Kg	1	L557994		06/11/2021	06/11/2021	
2-Methylnaphthalene	0.00117	0.00067	"	"	"		"	"	
Acenaphthene	ND	0.00067	"	"	"		"	"	
Anthracene	ND	0.00067	"	"	"		"	"	
Benzo(a)anthracene	ND	0.00067	"	"	"		"	"	
Benzo(a)pyrene	ND	0.00067	"	"	"		"	"	
Benzo(b)fluoranthene	ND	0.00067	"	"	"		"	"	
Benzo(k)fluoranthene	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	"	"	"		"	"	
Naphthalene	0.000599	0.00067	"	"	"		"	"	J
Pyrene	ND	0.00067	"	"	"		"	"	

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 WH/Flowline Decommiss

**WH-FS-01@5'**  
**6/8/2021 12:28:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y106174-01 (Soil)**

**PAH by 8270D SIM**

Surrogate: 2-Fluorobiphenyl	65.7 %	33-115			L5579 94		06/11/2021	06/11/2021	
Surrogate: 4-Terphenyl-d14	63.9 %	33-122			"	"	"	"	
Surrogate: Nitrobenzene-d5	48.5 %	29-110			"	"	"	"	

**pH in Soil by EPA 9045D**

pH	8.24		pH Units	1	B1F1022	DJL	06/10/2021	06/16/2021	
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**SAR by 20B Saturated Paste**

SAR	2.37		SAR	1	B1F1024	CJM	06/10/2021	06/11/2021	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.278	0.00500	mmhos/cm	1	B1F1023	DJL	06/10/2021	06/15/2021	
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 WH/Flowline 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 B1F0805 - EPA 5030 (soil)**

**Blank (B1F0805-BLK1)**

Prepared: 06/08/2021 Analyzed: 06/10/2021

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	0.12		"	0.125	95.7		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	98.8		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	96.7		70-130			

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 WH/Flowline 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 B1F0805 - EPA 5030 (soil)**

**LCS (B1F0805-BS1)**

Prepared: 06/08/2021 Analyzed: 06/10/2021

1,2,4-Trimethylbenzene	0.0502	0.00200	mg/kg	0.0500		100	70-130			
Naphthalene	0.0516	0.0100	"	0.0500		103	70-130			
1,3,5-Trimethylbenzene	0.0500	0.00200	"	0.0500		99.9	70-130			
Benzene	0.0427	0.00200	"	0.0500		85.4	70-130			
Ethylbenzene	0.0465	0.00200	"	0.0500		93.0	70-130			
m,p-Xylene	0.0992	0.00400	"	0.100		99.2	70-130			
o-Xylene	0.0517	0.00200	"	0.0500		103	70-130			
Toluene	0.0447	0.00200	"	0.0500		89.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		95.2	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.5	70-130			

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 WH/Flowline 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 B1F0805 - EPA 5030 (soil)**

Matrix Spike (B1F0805-MS1)	Source: Y106154-06			Prepared: 06/08/2021 Analyzed: 06/10/2021						
1,2,4-Trimethylbenzene	0.0495	0.00200	mg/kg	0.0500	ND	99.0	70-130			
Naphthalene	0.0475	0.0100	"	0.0500	0.000840	93.2	70-130			
1,3,5-Trimethylbenzene	0.0493	0.00200	"	0.0500	ND	98.6	70-130			
Benzene	0.0485	0.00200	"	0.0500	ND	97.0	70-130			
Ethylbenzene	0.0493	0.00200	"	0.0500	ND	98.6	70-130			
m,p-Xylene	0.100	0.00400	"	0.100	0.00192	98.3	70-130			
o-Xylene	0.0489	0.00200	"	0.0500	ND	97.7	70-130			
Toluene	0.0481	0.00200	"	0.0500	ND	96.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		95.8	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.5	70-130			

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**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 B1F0805 - EPA 5030 (soil)**

Matrix Spike Dup (B1F0805-MSD1)	Source: Y106154-06			Prepared: 06/08/2021 Analyzed: 06/10/2021						
1,2,4-Trimethylbenzene	0.0542	0.00200	mg/kg	0.0500	ND	108	70-130	9.14	20	
Naphthalene	0.0550	0.0100	"	0.0500	0.000840	108	70-130	14.7	20	
1,3,5-Trimethylbenzene	0.0542	0.00200	"	0.0500	ND	108	70-130	9.43	20	
Benzene	0.0525	0.00200	"	0.0500	ND	105	70-130	8.00	20	
Ethylbenzene	0.0529	0.00200	"	0.0500	ND	106	70-130	7.08	20	
m,p-Xylene	0.108	0.00400	"	0.100	0.00192	106	70-130	7.77	20	
o-Xylene	0.0528	0.00200	"	0.0500	ND	106	70-130	7.75	20	
Toluene	0.0512	0.00200	"	0.0500	ND	102	70-130	6.24	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		95.6	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.3	70-130			

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**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 B1F0911 - EPA 3550B</b>										
<b>Blank (B1F0911-BLK1)</b>										
					Prepared: 06/09/2021 Analyzed: 06/09/2021					
Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	43		"	50.0		86.9	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 B1F0911 - EPA 3550B**

**LCS (B1F0911-BS1)**

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

Diesel (C10-C28)	809	50.0	mg/kg	1000		80.9	70-130			
Residual Range Organics (C28-C40)	941	200	"	1000		94.1	70-130			
Surrogate: o-Terphenyl	46		"	50.0		92.5	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 B1F0911 - EPA 3550B**

<b>Matrix Spike (B1F0911-MS1)</b>	<b>Source: Y106177-01</b>			Prepared: 06/09/2021 Analyzed: 06/09/2021						
Diesel (C10-C28)	787	50.0	mg/kg	1000	ND	78.7	70-130			
Residual Range Organics (C28-C40)	887	200	"	1000	50.4	83.6	70-130			
Surrogate: o-Terphenyl	44		"	50.0		87.9	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 B1F0911 - EPA 3550B

Matrix Spike Dup (B1F0911-MSD1)	Source: Y106177-01			Prepared: 06/09/2021 Analyzed: 06/09/2021						
Diesel (C10-C28)	902	50.0	mg/kg	1000	ND	90.2	70-130	13.6	35	
Residual Range Organics (C28-C40)	1070	200	"	1000	50.4	102	70-130	18.4	35	
Surrogate: o-Terphenyl	52		"	50.0		103	50-150			

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**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 L557994 - 3550B**

<b>MSD (L 93801-MSD-L557994)</b>		<b>Source: 93801</b>			Prepared: 06/11/2021 Analyzed: 06/11/2021					
Benzo(k)fluoranthene	0.0866	0.000486	mg/Kg	0.166	<0.000486	52.1	30-130	21	30	
1-Methylnaphthalene	0.0968	0.00048	"	0.166	<0.000480	58.3	30-130	31.5	30	
2-Methylnaphthalene	0.0974	0.000542	"	0.166	<0.000542	58.6	30-130	30.9	30	
Acenaphthene	0.1	0.000431	"	0.166	<0.000431	60.2	30-130	26	30	
Anthracene	0.11	0.000426	"	0.166	<0.000426	66.2	30-130	28.1	30	
Benzo(a)anthracene	0.104	0.000441	"	0.166	<0.000441	62.6	30-130	29.5	30	
Pyrene	0.115	0.000387	"	0.166	0.000413	69.2	30-130	25	30	
Benzo(a)pyrene	0.104	0.000133	"	0.166	<0.000133	62.6	30-130	28	30	
Naphthalene	0.0895	0.000467	"	0.166	<0.000467	53.9	30-130	28.2	30	
Indeno(1,2,3-cd)pyrene	0.0894	0.000344	"	0.166	<0.000344	53.8	30-130	39.2	30	
Fluorene	0.106	0.000501	"	0.166	<0.000501	63.8	30-130	27.6	30	
Fluoranthene	0.117	0.000529	"	0.166	<0.000529	70.4	30-130	25.3	30	
Dibenz(a,h)anthracene	0.0956	0.000279	"	0.166	<0.000279	57.5	30-130	34.8	30	
Chrysene	0.106	0.000256	"	0.166	<0.000256	63.8	30-130	21.8	30	
Benzo(b)fluoranthene	0.0834	0.000138	"	0.166	<0.000138	50.2	30-130	35.1	30	
Surrogate: 2-Fluorobiphenyl	76.2		"	0.332	220	76.2	33-115			
Surrogate: 4-Terphenyl-d14	78		"	0.332	231	78	33-122			
Surrogate: Nitrobenzene-d5	61.7		"	0.332	165	61.7	29-110			

<b>MS (L 93801-MS-L557994)</b>		<b>Source: 93801</b>			Prepared: 06/11/2021 Analyzed: 06/11/2021					
Benzo(b)fluoranthene	0.119	0.000138	mg/Kg	0.166	<0.000138	71.6	30-130			
Dibenz(a,h)anthracene	0.136	0.000279	"	0.166	<0.000279	81.9	30-130			
Pyrene	0.148	0.000387	"	0.166	0.000413	89.1	30-130			
Naphthalene	0.119	0.000467	"	0.166	<0.000467	71.6	30-130			
Indeno(1,2,3-cd)pyrene	0.133	0.000344	"	0.166	<0.000344	80.1	30-130			
Fluorene	0.14	0.000501	"	0.166	<0.000501	84.3	30-130			
Fluoranthene	0.151	0.000529	"	0.166	<0.000529	90.9	30-130			

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: 310066  
 Project: Bonanza - North Platte 22-24  
 WH/Flowline Decommiss

**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 L557994 - 3550B**

<b>MS (L 93801-MS-L557994)</b>	<b>Source: 93801</b>			<b>Prepared: 06/11/2021 Analyzed: 06/11/2021</b>						
2-Methylnaphthalene	0.133	0.000542	mg/Kg	0.166	<0.000542	80.1	30-130			
Benzo(a)pyrene	0.138	0.000133	"	0.166	<0.000133	83.1	30-130			
Benzo(a)anthracene	0.14	0.000441	"	0.166	<0.000441	84.3	30-130			
Anthracene	0.146	0.000426	"	0.166	<0.000426	87.9	30-130			
Acenaphthene	0.13	0.000431	"	0.166	<0.000431	78.3	30-130			
Benzo(k)fluoranthene	0.107	0.000486	"	0.166	<0.000486	64.4	30-130			
1-Methylnaphthalene	0.133	0.00048	"	0.166	<0.000480	80.1	30-130			
Chrysene	0.132	0.000256	"	0.166	<0.000256	79.5	30-130			
Surrogate: Nitrobenzene-d5	63.4		"	0.331	165	63.4	29-110			
Surrogate: 4-Terphenyl-d14	74.6		"	0.331	231	74.6	33-122			
Surrogate: 2-Fluorobiphenyl	76.4		"	0.331	220	76.4	33-115			

<b>LCS (LCS-L557994)</b>	<b>Prepared: 06/11/2021 Analyzed: 06/11/2021</b>									
Dibenz(a,h)anthracene	0.125	0.000279	mg/Kg	0.167		74.8	30-130			
Fluoranthene	0.151	0.000529	"	0.167		90.4	30-130			
Fluorene	0.141	0.000501	"	0.167		84.4	30-130			
Indeno(1,2,3-cd)pyrene	0.117	0.000344	"	0.167		70	30-130			
Naphthalene	0.118	0.000467	"	0.167		70.6	30-130			
Pyrene	0.148	0.000387	"	0.167		88.6	30-130			
Acenaphthene	0.131	0.000431	"	0.167		78.4	30-130			
Chrysene	0.137	0.000256	"	0.167		82	30-130			
Benzo(b)fluoranthene	0.116	0.000138	"	0.167		69.4	30-130			
Benzo(a)pyrene	0.138	0.000133	"	0.167		82.6	30-130			
Anthracene	0.146	0.000426	"	0.167		87.4	30-130			
2-Methylnaphthalene	0.131	0.000542	"	0.167		78.4	30-130			
1-Methylnaphthalene	0.131	0.00048	"	0.167		78.4	30-130			
Benzo(a)anthracene	0.137	0.000441	"	0.167		82	30-130			

Origins Laboratory, Inc.



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 Project Number: 310066  
 Project: Bonanza - North Platte 22-24  
 WH/Flowline Decommiss

**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 L557994 - 3550B**

**LCS (LCS-L557994)**

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

Benzo(k)fluoranthene	0.105	0.000486	mg/Kg	0.167		62.8	30-130			
Surrogate: Nitrobenzene-d5	61.2		"	0.333		61.2	29-110			
Surrogate: 4-Terphenyl-d14	76.2		"	0.333		76.2	33-122			
Surrogate: 2-Fluorobiphenyl	75.6		"	0.333		75.6	33-115			

**LRB (LRB-L557994)**

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

Pyrene	ND	0.00067	mg/Kg				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Chrysene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	51.9		"	0.333		51.9	29-110			
Surrogate: 4-Terphenyl-d14	71.1		"	0.333		71.1	33-122			
Surrogate: 2-Fluorobiphenyl	69		"	0.333		69	33-115			

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

Martin C Eckert III  
Project Number: 310066  
Project: Bonanza - North Platte 22-24  
WH/Flowline Decommiss

**Notes and Definitions**

U Sample is Non-Detect.

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 at a wet weight basis.

Origins Laboratory, Inc.



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July 01, 2021

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

**Project Name - Bonanza - North Platte 22-24/11-24 Project Number - [none]  
Flowline**

Attached are your analytical results for Bonanza - North Platte 22-24/11-24 Flowline received by Origins Laboratory, Inc. June 23, 2021. This project is associated with Origins project number Y106578-01.

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: [none]  
Project: Bonanza - North Platte 22-24/11-24  
Flowline

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL-SS-01@3'	Y106578-01	Soil	June 23, 2021 13:05	06/23/2021 16:52

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: [none]  
 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y100578

Client: Eagle

Client Project ID: N.P. 22-24/11-24 Flowline

Checklist Completed by: SG

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

Date/time completed: 6/24/21

Airbill #: N/A

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

Cooler Number/Temperature: 1128 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe)

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> ?	<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: jm (Project Manager)

6-25-21  
 Date/Time Reviewed

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: [none]  
 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**FL-SS-01@3'**  
**6/23/2021 1:05:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y106578-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND		0.200	mg/L	1	B1F2409	06/24/2021	06/24/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		50.0	mg/kg	1	B1F2314	06/23/2021	06/25/2021	U
Residual Range Organics (C28-C40)	ND		200	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 90.8 % 50-150 " " "

**GBTEX+TMBs**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B1F2401	06/24/2021	06/26/2021	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 108 % 70-130 " " "

Origins Laboratory, Inc.



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 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**FL-SS-01@3'**  
**6/23/2021 1:05:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y106578-01 (Soil)**

**GBTEX+TMBs**

Surrogate: Toluene-d8	86.4 %		70-130			B1F24 01	06/24/2021	06/26/2021	
Surrogate: 4-Bromofluorobenzene	95.0 %		70-130			"	"	"	

**Metals by Saturated Paste**

Calcium	3.12			meq/L	1	[CALC]	06/25/2021	06/28/2021	
Magnesium	1.40			"	"	"	"	"	
Sodium	0.444			"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00048	0.00067	mg/Kg	1	L561224	06/29/2021	06/29/2021	
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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 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**FL-SS-01@3'**  
**6/23/2021 1:05:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y106578-01 (Soil)**

**PAH by 8270D SIM**

Fluorene	ND	0.000501	0.00067	mg/Kg	1	L561224	06/29/2021	06/29/2021	
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	71.5 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	76 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	61.3 %		29-110			"	"	"	

**pH in Soil by EPA 9045D**

pH	7.86			pH Units	1	B1F2503	06/25/2021	06/25/2021	
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**SAR by 20B Saturated Paste**

SAR	0.295			SAR	1	B1F2516	06/25/2021	06/28/2021	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.538	0.00500		mmhos/cm	1	B1F2505	06/25/2021	06/25/2021	
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 Wheat Ridge CO 80033

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 Project Number: [none]  
 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**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 B1F2314 - EPA 3550B</b>										
<b>Blank (B1F2314-BLK1)</b>										
					Prepared: 06/23/2021 Analyzed: 06/23/2021					
Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	47		"	50.0		93.2	50-150			

Origins Laboratory, Inc.



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 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**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 B1F2314 - EPA 3550B**

**LCS (B1F2314-BS1)**

Prepared: 06/23/2021 Analyzed: 06/23/2021

Diesel (C10-C28)	610	50.0	mg/kg	500		122	70-130			
Residual Range Organics (C28-C40)	642	200	"	500		128	70-130			
Surrogate: o-Terphenyl	58		"	50.0		116	50-150			

Origins Laboratory, Inc.



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 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**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 B1F2314 - EPA 3550B**

<b>Matrix Spike (B1F2314-MS1)</b>	<b>Source: Y106537-02</b>			Prepared: 06/23/2021 Analyzed: 06/23/2021						
Diesel (C10-C28)	466	50.0	mg/kg	500	ND	93.2	70-130			
Residual Range Organics (C28-C40)	563	200	"	500	44.4	104	70-130			
Surrogate: o-Terphenyl	43		"	50.0		86.7	50-150			

Origins Laboratory, Inc.



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 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**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 B1F2314 - EPA 3550B**

<b>Matrix Spike Dup (B1F2314-MSD1)</b>	<b>Source: Y106537-02</b>			<b>Prepared: 06/23/2021 Analyzed: 06/23/2021</b>						
Diesel (C10-C28)	524	50.0	mg/kg	500	ND	105	70-130	11.8	35	
Residual Range Organics (C28-C40)	626	200	"	500	44.4	116	70-130	10.6	35	
Surrogate: o-Terphenyl	54		"	50.0		109	50-150			

Origins Laboratory, Inc.



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 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**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 B1F2401 - EPA 5030 (soil)**

**Blank (B1F2401-BLK1)**

Prepared: 06/24/2021 Analyzed: 06/24/2021

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	0.12		"	0.125		95.6	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		92.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.3	70-130			

Origins Laboratory, Inc.



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 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**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 B1F2401 - EPA 5030 (soil)**

**LCS (B1F2401-BS1)**

Prepared: 06/24/2021 Analyzed: 06/24/2021

1,2,4-Trimethylbenzene	0.0491	0.00200	mg/kg	0.0500		98.2	70-130			
Naphthalene	0.0476	0.0100	"	0.0500		95.3	70-130			
1,3,5-Trimethylbenzene	0.0489	0.00200	"	0.0500		97.8	70-130			
Benzene	0.0528	0.00200	"	0.0500		106	70-130			
Ethylbenzene	0.0481	0.00200	"	0.0500		96.2	70-130			
m,p-Xylene	0.0980	0.00400	"	0.100		98.0	70-130			
o-Xylene	0.0487	0.00200	"	0.0500		97.4	70-130			
Toluene	0.0474	0.00200	"	0.0500		94.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		93.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		92.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		95.6	70-130			

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 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**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 B1F2401 - EPA 5030 (soil)

Matrix Spike (B1F2401-MS1)	Source: Y106558-01			Prepared: 06/24/2021 Analyzed: 06/26/2021						
1,2,4-Trimethylbenzene	0.0391	0.00200	mg/kg	0.0500	ND	78.3	70-130			
Naphthalene	0.0487	0.0100	"	0.0500	ND	97.4	70-130			
1,3,5-Trimethylbenzene	0.0371	0.00200	"	0.0500	ND	74.2	70-130			
Benzene	0.0495	0.00200	"	0.0500	ND	99.0	70-130			
Ethylbenzene	0.0371	0.00200	"	0.0500	ND	74.1	70-130			
m,p-Xylene	0.0759	0.00400	"	0.100	ND	75.9	70-130			
o-Xylene	0.0403	0.00200	"	0.0500	ND	80.7	70-130			
Toluene	0.0398	0.00200	"	0.0500	ND	79.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.11		"	0.125		87.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		94.8	70-130			

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**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 B1F2401 - EPA 5030 (soil)

Matrix Spike Dup (B1F2401-MSD1)	Source: Y106558-01			Prepared: 06/24/2021 Analyzed: 06/26/2021						
1,2,4-Trimethylbenzene	0.0411	0.00200	mg/kg	0.0500	ND	82.1	70-130	4.79	20	
Naphthalene	0.0503	0.0100	"	0.0500	ND	101	70-130	3.27	20	
1,3,5-Trimethylbenzene	0.0402	0.00200	"	0.0500	ND	80.4	70-130	8.07	20	
Benzene	0.0547	0.00200	"	0.0500	ND	109	70-130	10.1	20	
Ethylbenzene	0.0408	0.00200	"	0.0500	ND	81.5	70-130	9.51	20	
m,p-Xylene	0.0823	0.00400	"	0.100	ND	82.3	70-130	8.09	20	
o-Xylene	0.0418	0.00200	"	0.0500	ND	83.7	70-130	3.65	20	
Toluene	0.0442	0.00200	"	0.0500	ND	88.4	70-130	10.6	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		103	70-130			
Surrogate: Toluene-d8	0.11		"	0.125		88.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		93.5	70-130			

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**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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**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 B1F2503 - NO PREP**

**Duplicate (B1F2503-DUP1)**

**Source: Y106558-01**

Prepared: 06/25/2021 Analyzed: 06/25/2021

pH	7.22		pH Units		7.25			0.415	25	
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**Batch B1F2505 - NO PREP**

**Blank (B1F2505-BLK1)**

Prepared: 06/25/2021 Analyzed: 06/25/2021

Specific Conductance (EC)	0.00220	0.00500	mmhos/cm							
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**Duplicate (B1F2505-DUP1)**

**Source: Y106558-01**

Prepared: 06/25/2021 Analyzed: 06/25/2021

Specific Conductance (EC)	0.606	0.00500	mmhos/cm		0.600			0.862	25	
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 Project Number: [none]  
 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**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 L561224 - 3550B

MSD (L 86857-MSD-L561224)	Source: 86857			Prepared: 06/29/2021 Analyzed: 06/29/2021						
1-Methylnaphthalene	0.119	0.00048	mg/Kg	0.166	<0.000480	71.6	30-130	5.1	30	
Benzo(a)anthracene	0.124	0.000441	"	0.166	0.00134	73.8	30-130	4.1	30	
Anthracene	0.147	0.000426	"	0.166	<0.000426	88.5	30-130	7	30	
Acenaphthene	0.133	0.000431	"	0.166	<0.000431	80.1	30-130	4.6	30	
Chrysene	0.144	0.000256	"	0.166	0.00166	85.7	30-130	2.8	30	
2-Methylnaphthalene	0.116	0.000542	"	0.166	<0.000542	69.8	30-130	6.2	30	
Pyrene	0.13	0.000387	"	0.166	0.00296	76.5	30-130	3.1	30	
Benzo(b)fluoranthene	0.0933	0.000138	"	0.166	0.00222	54.8	30-130	4.5	30	
Naphthalene	0.113	0.000467	"	0.166	<0.000467	68	30-130	7.3	30	
Indeno(1,2,3-cd)pyrene	0.107	0.000344	"	0.166	0.00128	63.6	30-130	9.2	30	
Fluorene	0.135	0.000501	"	0.166	<0.000501	81.3	30-130	5.3	30	
Fluoranthene	0.13	0.000529	"	0.166	0.00297	76.5	30-130	3.1	30	
Dibenz(a,h)anthracene	0.111	0.000279	"	0.166	<0.000279	66.8	30-130	0.9	30	
Benzo(k)fluoranthene	0.119	0.000486	"	0.166	0.00119	70.9	30-130	11.8	30	
Benzo(a)pyrene	0.138	0.000133	"	0.166	0.00216	81.8	30-130	4.4	30	
Surrogate: 4-Terphenyl-d14	80		"	0.331	239	80	33-122			
Surrogate: 2-Fluorobiphenyl	72.5		"	0.331	228	72.5	33-115			
Surrogate: Nitrobenzene-d5	61.9		"	0.331	195	61.9	29-110			

MS (L 86857-MS-L561224)	Source: 86857			Prepared: 06/29/2021 Analyzed: 06/29/2021						
Benzo(b)fluoranthene	0.0976	0.000138	mg/Kg	0.167	0.00222	57.1	30-130			
Dibenz(a,h)anthracene	0.11	0.000279	"	0.167	<0.000279	65.8	30-130			
Pyrene	0.126	0.000387	"	0.167	0.00296	73.6	30-130			
Naphthalene	0.105	0.000467	"	0.167	<0.000467	62.8	30-130			
Indeno(1,2,3-cd)pyrene	0.0975	0.000344	"	0.167	0.00128	57.6	30-130			
Fluorene	0.128	0.000501	"	0.167	<0.000501	76.6	30-130			
Fluoranthene	0.126	0.000529	"	0.167	0.00297	73.6	30-130			

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 Project Number: [none]  
 Project: Bonanza - North Platte 22-24/11-24  
 Flowline

**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 L561224 - 3550B**

MS (L 86857-MS-L561224)	Source: 86857			Prepared: 06/29/2021 Analyzed: 06/29/2021						
2-Methylnaphthalene	0.109	0.000542	mg/Kg	0.167	<0.000542	65.2	30-130			
Benzo(a)pyrene	0.132	0.000133	"	0.167	0.00216	77.7	30-130			
Benzo(a)anthracene	0.119	0.000441	"	0.167	0.00134	70.4	30-130			
Anthracene	0.137	0.000426	"	0.167	<0.000426	82	30-130			
Acenaphthene	0.127	0.000431	"	0.167	<0.000431	76	30-130			
Benzo(k)fluoranthene	0.134	0.000486	"	0.167	0.00119	79.5	30-130			
1-Methylnaphthalene	0.113	0.00048	"	0.167	<0.000480	67.6	30-130			
Chrysene	0.14	0.000256	"	0.167	0.00166	82.8	30-130			
Surrogate: Nitrobenzene-d5	57.3		"	0.333	195	57.3	29-110			
Surrogate: 4-Terphenyl-d14	79.5		"	0.333	239	79.5	33-122			
Surrogate: 2-Fluorobiphenyl	70.2		"	0.333	228	70.2	33-115			

LCS (LCS-L561224)	Prepared: 06/29/2021 Analyzed: 06/29/2021									
Dibenz(a,h)anthracene	0.105	0.000279	mg/Kg	0.167		62.8	30-130			
Fluoranthene	0.117	0.000529	"	0.167		70	30-130			
Fluorene	0.121	0.000501	"	0.167		72.4	30-130			
Indeno(1,2,3-cd)pyrene	0.097	0.000344	"	0.167		58	30-130			
Naphthalene	0.105	0.000467	"	0.167		62.8	30-130			
Pyrene	0.117	0.000387	"	0.167		70	30-130			
Acenaphthene	0.12	0.000431	"	0.167		71.8	30-130			
Chrysene	0.129	0.000256	"	0.167		77.2	30-130			
Benzo(b)fluoranthene	0.0839	0.000138	"	0.167		50.2	30-130			
Benzo(a)pyrene	0.125	0.000133	"	0.167		74.8	30-130			
Anthracene	0.132	0.000426	"	0.167		79	30-130			
2-Methylnaphthalene	0.107	0.000542	"	0.167		64	30-130			
1-Methylnaphthalene	0.109	0.00048	"	0.167		65.2	30-130			
Benzo(a)anthracene	0.112	0.000441	"	0.167		67	30-130			

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Martin C Eckert III  
 Project Number: [none]  
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 Flowline

**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 L561224 - 3550B**

**LCS (LCS-L561224)**

Prepared: 06/29/2021 Analyzed: 06/29/2021

Benzo(k)fluoranthene	0.129	0.000486	mg/Kg	0.167		77.2	30-130			
Surrogate: Nitrobenzene-d5	63.6		"	0.333		63.6	29-110			
Surrogate: 4-Terphenyl-d14	80.1		"	0.333		80.1	33-122			
Surrogate: 2-Fluorobiphenyl	72.3		"	0.333		72.3	33-115			

**LRB (LRB-L561224)**

Prepared: 06/29/2021 Analyzed: 06/29/2021

Pyrene	ND	0.00067	mg/Kg				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Chrysene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Benzo(b)fluoranthene	0.000585	0.00067	"				-			J
Benzo(a)pyrene	0.000512	0.00067	"				-			J
Anthracene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	61.8		"	0.333		61.8	29-110			
Surrogate: 4-Terphenyl-d14	73.2		"	0.333		73.2	33-122			
Surrogate: 2-Fluorobiphenyl	69.6		"	0.333		69.6	33-115			

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Martin C Eckert III  
Project Number: [none]  
Project: Bonanza - North Platte 22-24/11-24  
Flowline

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**Notes and Definitions**

- U Sample is Non-Detect.
- 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.

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