

Wellhead Closure Checklist

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

Additional attachments (optional):		Pit Closure		Tank Battery Closure		Flowline Closure 4-14-22	Partially Buried Vault Closure
Site Name & COGCC Facility Number: Sandau #34-12F		Date: 4-14-22					Remediation Project #: 22548
Associated Wells: 05-123-15521		Age of Site: years					Number of Photos Attached: 1
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) 40.266780 / -104.770970						Estimated Facility Size (acres):	
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.) Good condition							
USCS Soil Type: SC				Estimated Depth to Groundwater: ~8-15'			
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	05-123-15521						
Age	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	1.2	1.6	1.2	5.1	6.5		
Sample taken? Location/Sample ID#	WH-SS-01	WH-SS-02	WH-SS-03	WH-SS-04	WH-FS-01		
Photo Number(s)	See photolog						
Other observations regarding wellheads: Well casing cut/capped following assessment							
Summary							
Was impacted soil identified? <u>No</u> 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: 6.5				Total number of samples submitted to lab for analysis: 1			
If more than 10 cubic yards of impacted soil were observed:							
Vertical extent:				Estimated spill volume:			
Lateral extent: N/A				Volume of soil removed:			
Is additional investigation required?							
Was groundwater encountered during the investigation? <u>No</u> 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:			
Seen 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		Wellhead Closure 4-14-22		Pit Closure		Partially Buried Vault Closure
Site Name & COGCC Facility Number: Sandau #34-12F		Date: 4-14-22			Remediation Project #: 22548			
Associated Wells: 05-123-1552.1		Age of Site: years			Number of Photos Attached: 1			
Starting point: (GPS coordinates and descriptions) At well: 40.266780 / -104.770970								
End point: (GPS coordinates and descriptions) At sep: 40.267180 / -104.772727								
USCS Soil Type: SC					Estimated Depth to Groundwater: ~8-15'			
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	0, G, W							
Depth	~3'							
Age	years							
Length	~490'							
Construction Material	Steel							
Were flowlines pulled?	No - abandoned in place							
Visual Integrity of lines	N/A							
Visual impacts if trenched	N/A							
PID Readings if trenched	2.5							
Sample taken? Location/Sample ID#	FL-SS-01							
Photo Number(s)	See photo log							
Other observations regarding on location flowlines:								
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: 1					Total number of samples collected: 1			
Highest PID Reading: 2.5					Total number of samples submitted to lab for analysis: 1			
If more than 10 cubic yards of impacted soil were observed:								
Vertical extent:					Estimated spill volume:			
Lateral extent:					Volume of soil removed:			
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

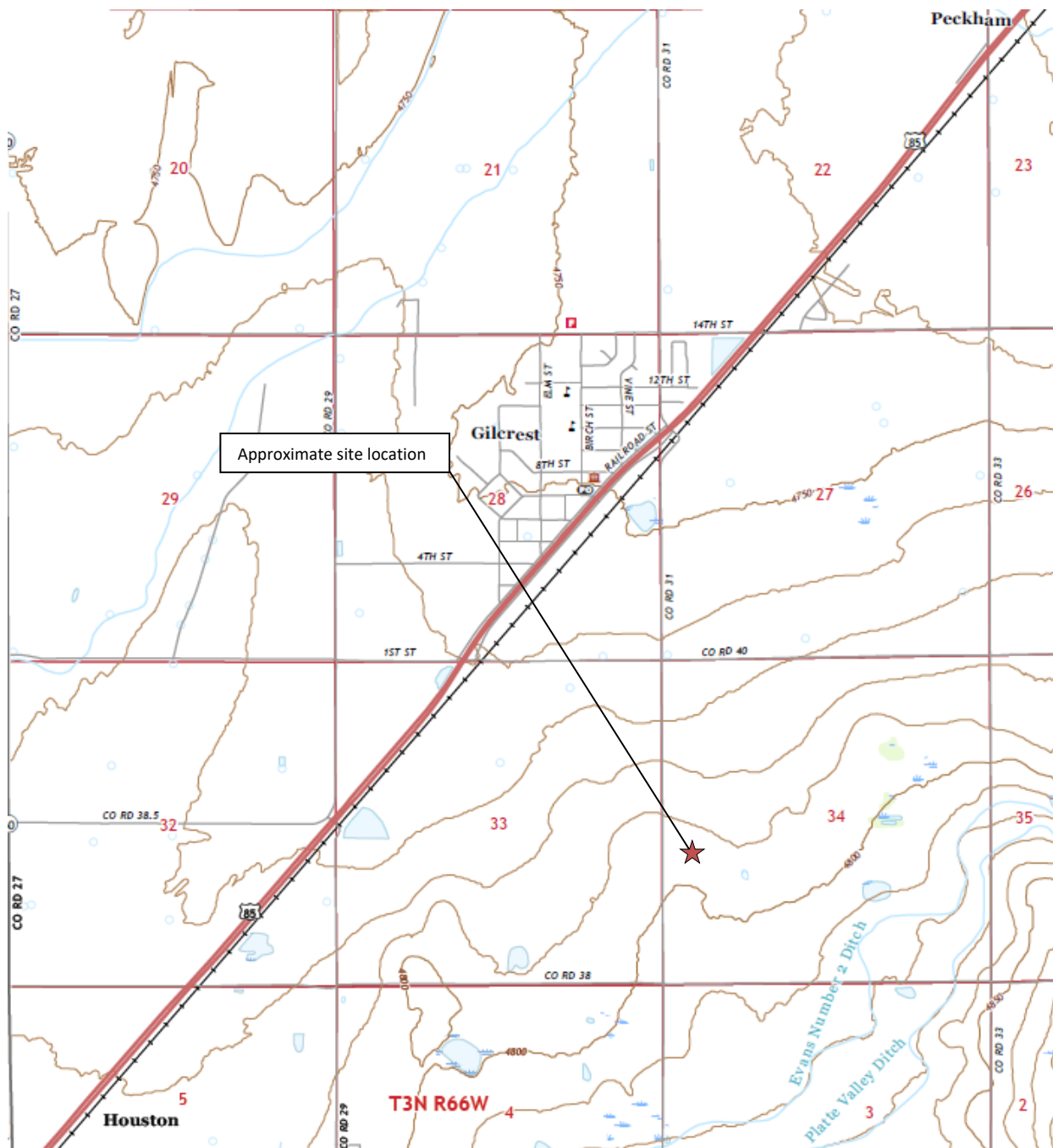
Figure 1: Topographic Site Location Map

Figure 2: Aerial Site Location Map

Figure 3: Soil Analytical Map

Figure 4: Polycyclic Aromatic Hydrocarbons Map

Figure 5: Metals in Soil Map



Topographic Site Location Map

Sandau #34-12F
 Closure Assessment
 40.266780 / -104.770970
 NW¼ SW¼ SEC.34 T4N R66W 6PM
 Weld County, Colorado
 API # 05-123-15521
 Remediation # 22548



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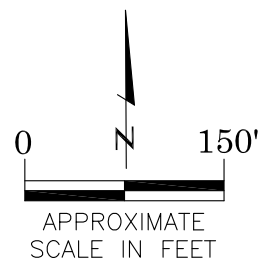
Source: USGS 7.5 Minute Topographic
 Map, Milliken, CO Quadrangle 2022

Figure 1



LEGEND

- FORMER SANDAU #34-12F WELLHEAD (PLUGGED AND ABANDONED)
- ASSOCIATED SEPARATOR
- APPROXIMATE FLOWLINE LOCATION (ABANDONED IN PLACE)



AERIAL SITE LOCATION MAP

SANDAU #34-12F
CLOSURE ASSESSMENT
40.266780 / -104.770970
NW¼ SW¼ SEC.34 T4N R66W 6PM
WELD COUNTY, COLORADO
API # 05-123-15521
REMEDATION # 22548

DATE:

04/26/22

FIG. NO.

2

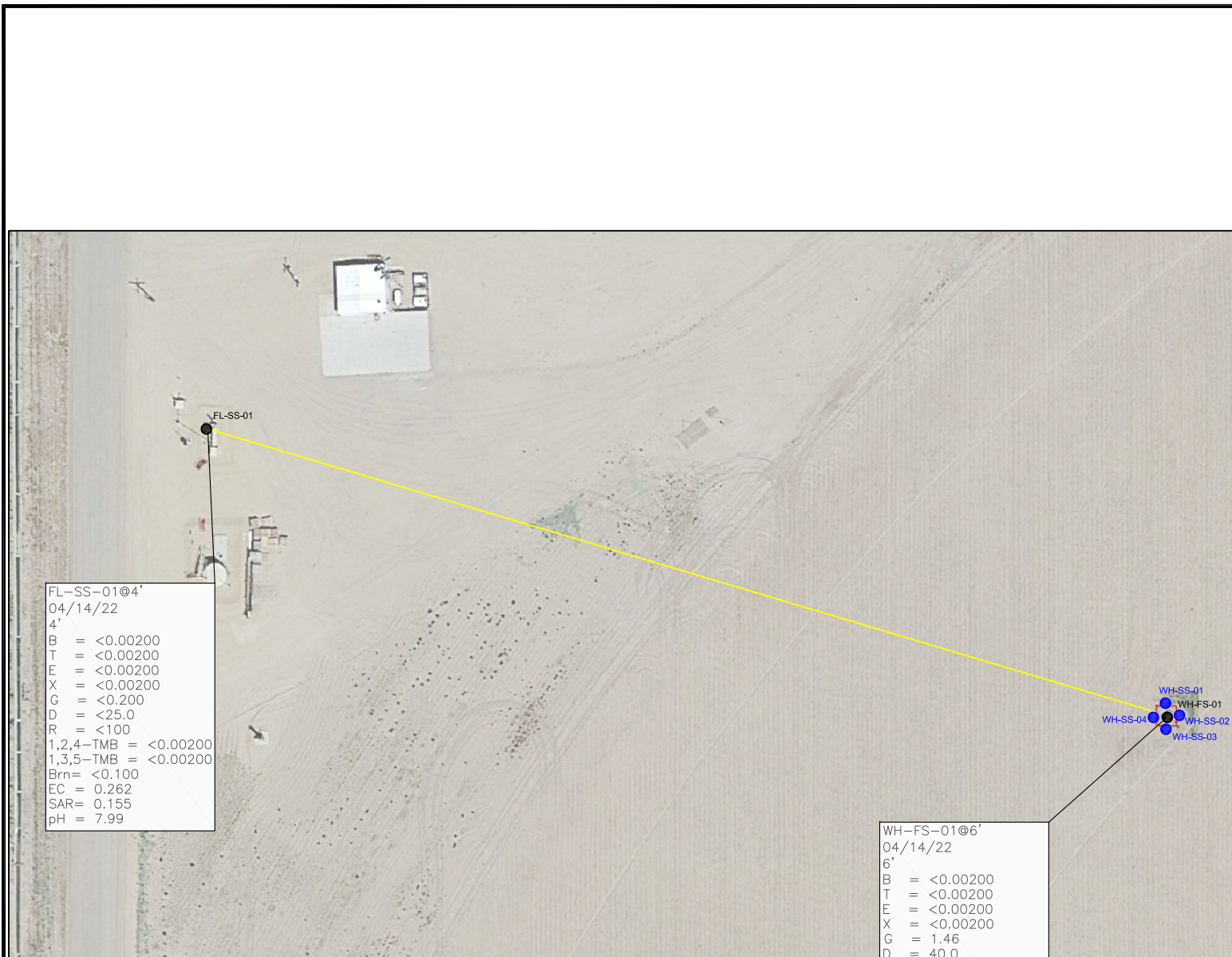
DRAWN BY:

AMN



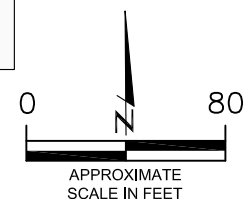
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Ph: 303-433-0479 • F: 303-325-5449



FL-SS-01@4'
04/14/22
4'
B = <0.00200
T = <0.00200
E = <0.00200
X = <0.00200
G = <0.200
D = <25.0
R = <100
1,2,4-TMB = <0.00200
1,3,5-TMB = <0.00200
Brn = <0.100
EC = 0.262
SAR = 0.155
pH = 7.99

WH-FS-01@6'
04/14/22
6'
B = <0.00200
T = <0.00200
E = <0.00200
X = <0.00200
G = 1.46
D = 40.0
R = <100
1,2,4-TMB = <0.00200
1,3,5-TMB = **0.0112***
Brn = 0.160
EC = 0.580
SAR = 1.72
pH = 7.90



LEGEND

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

PARAMETERS

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

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

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

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

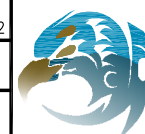
VALUES PRESENTED IN **BOLD** EXCEED COGCC TABLE 915-1 REGULATORY LIMITS

VALUES PRESENTED WITH AN ASTERISK (*) EXCEED COGCC TABLE 915-1 PROTECTION OF GROUNDWATER SOIL SCREENING LEVELS

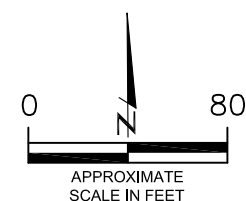
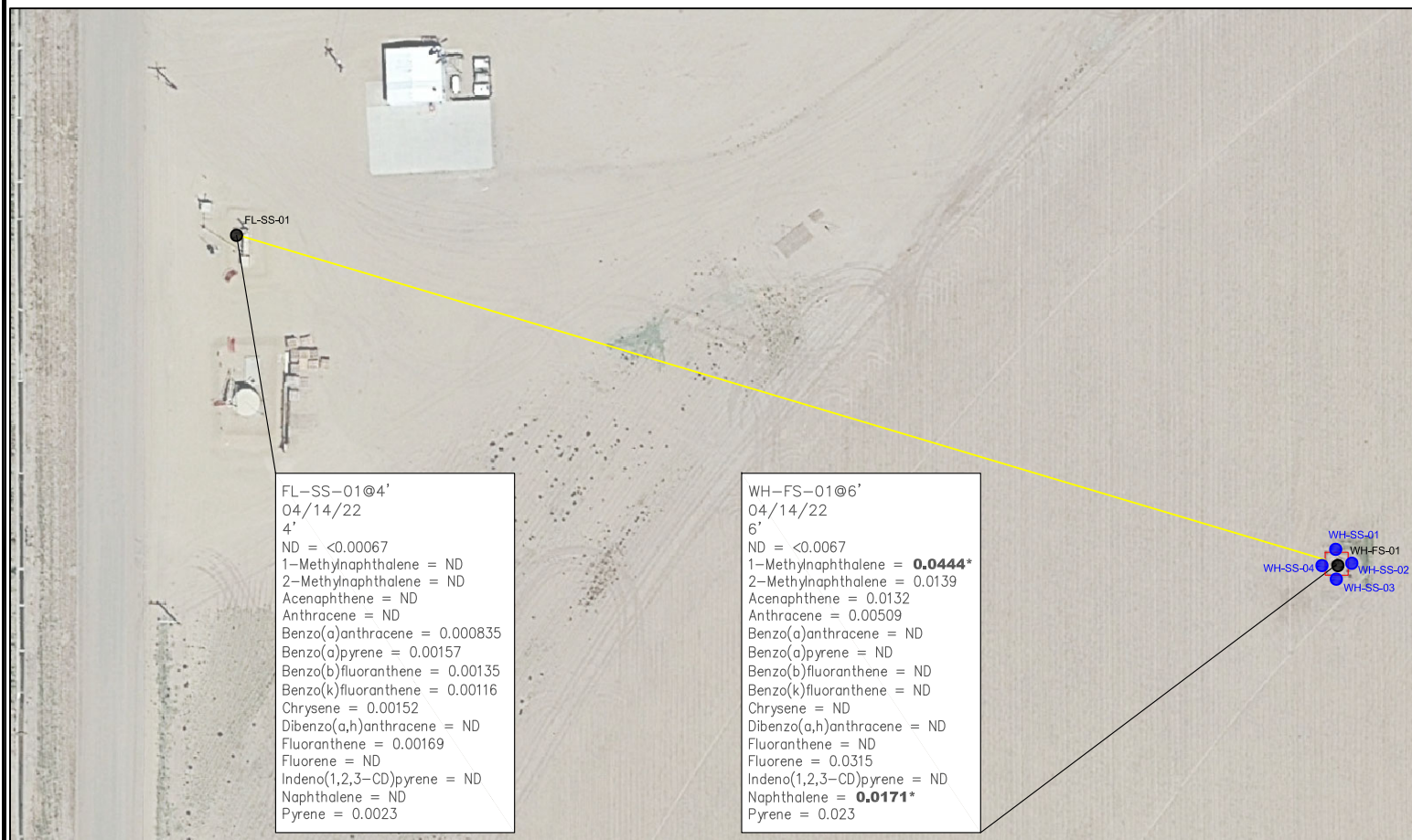
COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION

SOIL ANALYTICAL MAP
SANDAU #34-12F
CLOSURE ASSESSMENT
40.266780 / -104.770970
NW¼ SW¼ SEC.34 T4N R66W 6PM
WELD COUNTY, COLORADO
API # 05-123-15521
REMEDIATION # 22548

DATE:
04/26/22
DRAWN BY:
AMN
FIG.
NO. 3



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LEGEND

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

PARAMETERS

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

NOTE:
 CONCENTRATIONS PRESENTED IN mg/kg

mg/kg = MILLIGRAMS PER KILOGRAM

ND = NON-DETECT

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

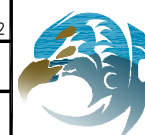
VALUES PRESENTED IN **BOLD** EXCEED COGCC TABLE 915-1 REGULATORY LIMITS.

VALUES PRESENTED WITH AN ASTERISK (*) EXCEED COGCC TABLE 915-1 PROTECTION OF GROUNDWATER SOIL SCREENING LEVELS

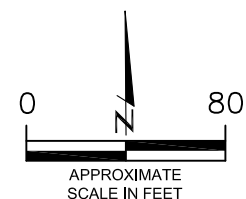
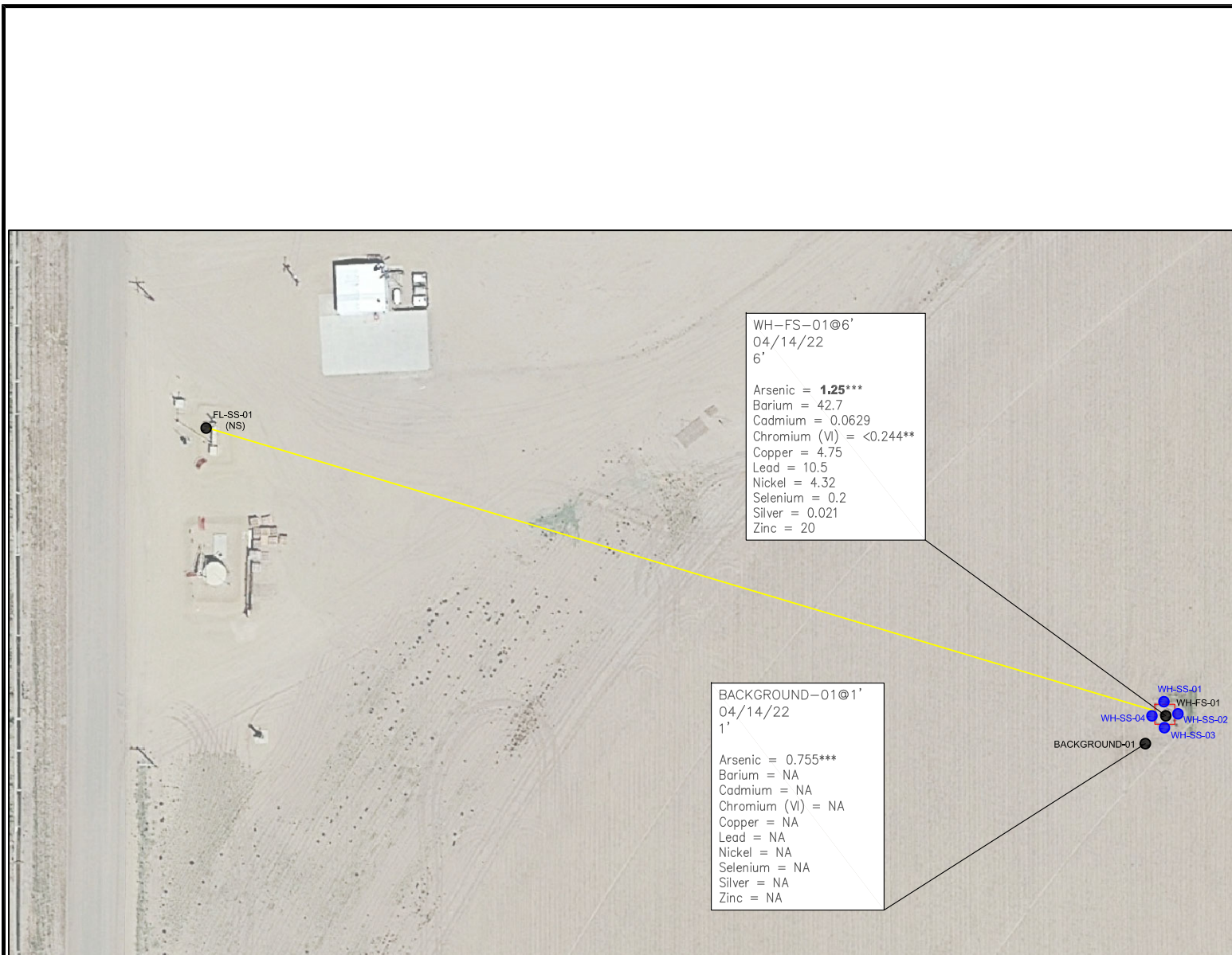
COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION

POLYCYCLIC AROMATIC HYDROCARBONS MAP
 SANDAU #34-12F
 CLOSURE ASSESSMENT
 40.266780 / -104.770970
 NW¼ SW¼ SEC.34 T4N R66W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-15521
 REMEDIATION # 22548

DATE:
 04/26/22
 DRAWN BY:
 AMN
 FIG.
 NO. 4



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LEGEND

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

PARAMETERS

SAMPLE LOCATION
DATE SAMPLE COLLECTED
APPROXIMATE DEPTH
Arsenic = (mg/kg)
Barium = (mg/kg)
Cadmium = (mg/kg)
Chromium (VI) = (mg/kg)
Copper = (mg/kg)
Lead = (mg/kg)
Nickel = (mg/kg)
Selenium = (mg/kg)
Silver = (mg/kg)
Zinc = (mg/kg)

mg/kg = MILLIGRAMS PER KILOGRAM

NA – NOT ANALYZED

(NS) – NOT SAMPLED

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

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

*VALUES EXCEED COGCC TABLE 915-1 PROTECTION OF GROUNDWATER SOIL SCREENING LEVELS.

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

***ARSENIC IS NATURALLY OCCURRING IN COLORADO. LOCAL CLEAN-UP LEVEL (0.944 mg/kg) is 1.25*BACKGROUND (0.755 mg/kg).

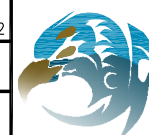
COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION

METALS IN SOIL MAP
SANDAU #34-12F
CLOSURE ASSESSMENT
40.266780 / -104.770970
NW¼ SW¼ SEC.34 T4N R66W 6PM
WELD COUNTY, COLORADO
API # 05-123-15521
REMEDATION # 22548

DATE:
05/27/22

DRAWN BY:
AMN

FIG.
NO. 5



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TABLES

Table 1: Photoionization Detector Reading Summary

Table 2: Soil Analytical Results Summary

Table 3: Polycyclic Aromatic Hydrocarbons Analytical Results Summary

Table 4: Metals Analytical Results Summary

TABLE 1
 PHOTOIONIZATION DETECTOR READING SUMMARY
 SANDAU #34-12F
 CLOSURE ASSESSMENT
 40.266780 / -104.770970
 NW1/4 SW1/4 SEC.34 T4N R66W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-15521
 REMEDIATION # 22548

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WH-SS-01 @ 5' (40.266795 / -104.770984)	04/14/22	5	1.2	N
WH-SS-02 @ 5' (40.266780 / -104.770966)	04/14/22	5	1.6	N
WH-SS-03 @ 5' (40.266766 / -104.770985)	04/14/22	5	1.2	N
WH-SS-04 @ 5' (40.266781 / -104.771004)	04/14/22	5	5.1	N
WH-FS-01 @ 6' (40.266780 / -104.770984)	04/14/22	6	6.5	Y
FL-SS-01 @ 4' (40.267182 / -104.772736)	04/14/22	4	2.5	Y
Background-01 @ 1' (40.266745 / -104.770148)	04/14/22	1	5.5	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = photoionization detector				

TABLE 2
SOIL ANALYTICAL RESULTS SUMMARY
SANDAU #34-12F
CLOSURE ASSESSMENT
40.266780 / -104.770970
NW1/4 SW1/4 SEC.34 T4N R66W 6PM
WELD COUNTY, COLORADO
API # 05-123-15521
REMEDATION # 22548

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-TMB (mg/kg)	1,3,5-TMB (mg/kg)	Boron (mg/L)	Specific Conductance (mmhos/cm)	pH (pH units)	SAR
COGCC Table 915-1 Residential Screening Levels (mg/kg)				1.20	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	--	--	--	--
WH-FS-01 @ 6' (40.266780 / -104.770984)	04/14/22	6	6.5	<0.00200	<0.00200	<0.00200	<0.00200	1.46	40.0	<100	<0.00200	0.0112*	0.160	0.580	7.90	1.72
FL-SS-01 @ 4' (40.267182 / -104.772736)	04/14/22	4	2.5	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200	<0.100	0.262	7.99	0.155
COGCC = Colorado Oil and Gas Conservation Commission mg/kg = milligrams per kilogram mmhos/cm = millimhos per centimeter PID = Photoionization Detector ppm-v = parts per million by volume mg/L = milligrams per liter SAR = Sodium Adsorption Ratio Note: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory MDL and/or reporting limit. Note: Values presented in BOLD exceed COGCC Table 915-1 Regulatory Limits. Values with asterisk (*) exceed COGCC Table 915-1 protection of groundwater soil screening levels.																
TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics TPH-RRO = Total Petroleum Hydrocarbons - Residual Range Organics 1,2,4-TMB = 1,2,4-Trimethylbenzene 1,3,5-TMB = 1,3,5-Trimethylbenzene MDL = Minimum Detection Limits																

TABLE 3
POLYCYCLIC AROMATIC HYDROCARBONS ANALYTICAL RESULTS SUMMARY
SANDAU #34-12F
CLOSURE ASSESSMENT
40.266780 / -104.770970
NW1/4 SW1/4 SEC.34 T4N R66W 6PM
WELD COUNTY, COLORADO
API # 05-123-15521
REMEDIAATION # 22548

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm- v)	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
WH-FS-01 @ 6' (40.266780 / -104.770984)	04/14/22	6	6.5	0.0444*	0.0139	0.0132	0.00509	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	0.0315	<0.0067	0.0171*	0.023
FL-SS-01 @ 4' (40.267182 / -104.772736)	04/14/22	4	2.5	<0.00067	<0.00067	<0.00067	<0.00067	0.000835	0.00157	0.00135	0.00116	0.00152	<0.00067	0.00169	<0.00067	<0.00067	<0.00067	0.0023
COGCC = Colorado Oil and Gas Conservation Commission PID = Photoionization Detector mg/kg = milligrams per kilogram 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 exceed COGCC Table 915-1 Regulatory Limits. Values with asterisk (*) exceed COGCC Table 915-1 protection of groundwater soil screening levels.																		

TABLE 4
METALS ANALYTICAL RESULTS SUMMARY
SANDAU #34-12F
CLOSURE ASSESSMENT
40.266780 / -104.770970
NW1/4 SW1/4 SEC.34 T4N R66W 6PM
WELD COUNTY, COLORADO
API # 05-123-15521
REMEDIATION # 22548

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Hexavalent Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
COGCC Table 915-1 Residential Screening Levels			0.68***	15,000	71	0.3**	3,100	400	1,500	390	390	23,000
COGCC Table 915-1 Protection of Groundwater Soil Screening Levels			0.29***	82	0.38	0.00067**	46	14	26	0.26	0.8	370
Local Clean-up Levels			0.944***	--	--	0.1 to 1**	--	--	--	--	--	--
WH-FS-01 @ 6' (40.266780 / -104.770984)	04/14/22	6	1.25***	42.7	0.0629	<0.244**	4.75	10.5	4.32	0.2	0.021	20
Background-01 @ 1' (40.266745 / -104.770148)	04/14/22	1	0.755***	NA	NA	NA	NA	NA	NA	NA	NA	NA
COGCC = Colorado Oil and Gas Conservation Commission mg/kg = milligrams per kilogram Notes: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit or minimum detection levels. Values presented in BOLD contained concentrations exceeding applicable COGCC Table 915-1 Regulatory Limits Values presented with asterisk (*) contained concentrations exceeding COGCC Table 915-1 Protection of Groundwater Soil Screening Levels **Achievable practical quantitative limits for Hexavalent Chromium in soils is in the range of 0.1 to 1 mg/kg. ***Arsenic is naturally occurring in Colorado. The Local Clean-up Level (0.944 mg/kg) is 1.25*Background (0.755 mg/kg).												



ATTACHMENT A

Photo Log

Sandau #34-12F
API # 05-123-15521
Remediation # 22548

Closure Assessment

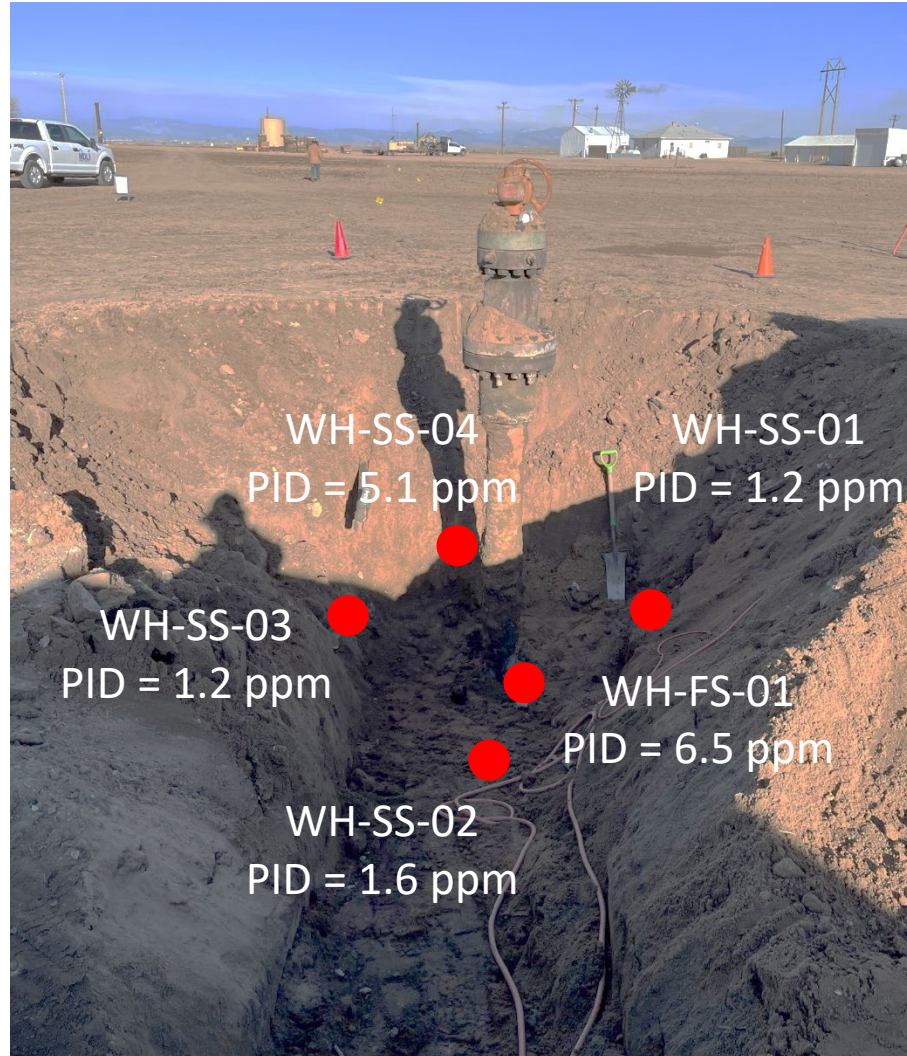
April 2022



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



Wellhead Excavation – 04/14/22



Looking west-northwest

No petroleum hydrocarbon staining or odor observed

Flowline Assessment – 04/14/22



Flowline abandoned in place

Pt. B (at separator) assessed

No petroleum hydrocarbon staining or odor observed



ATTACHMENT B

Laboratory Analytical Reports



May 06, 2022

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - Sandau #34-12F

Project Number - [none]

Attached are your analytical results for Noble - Sandau #34-12F received by Origins Laboratory, Inc. April 14, 2022. This project is associated with Origins project number Y204311-01.

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

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

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

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

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

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



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

Eagle Environmental Consulting, Inc.

8000 W 44th Ave

Wheat Ridge CO 80033

Martin C Eckert III

Project Number: [none]

Project: Noble - Sandau #34-12F

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@6'	Y204311-01	Soil	April 14, 2022 8:22	04/14/2022 15:05
FL-SS-01@4'	Y204311-02	Soil	April 14, 2022 7:45	04/14/2022 15:05

Chain of Custody Modification Request

On 4/26/2022, Andrew Newberry from Eagle Environmental contacted Jordan Bynon via email regarding Y204311 requesting that Table 915 metals be added to sample WH-FS-01@6'.

Requested modifications to the chain of custody were made by Jordan Bynon on 4/26/2022.

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Martin C Eckert III
Project Number: [none]
Project: Noble - Sandau #34-12F

[illegible]

Origins Laboratory, Inc.

Byron

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: [none]
Project: Noble - Sandau #34-12F

Origins Laboratory

Sample Receipt Checklist

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

Origins Work Order: Y204311

Client: Eagle/Noble

Client Project ID: Sandau

Checklist Completed by: JB

Shipped Via: HD

Date/time completed: 4/18/22

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

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

Cooler Number/Temperature: 1 1.7 °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 ≤ 5°C ⁽¹⁾ ?	<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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽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 HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" 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) JB

Date/Time Reviewed 4/18/22

Origins Laboratory, Inc.

J. Bynon

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: [none]
Project: Noble - Sandau #34-12F

WH-FS-01@6'

4/14/2022 8:22:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y204311-01 (Soil)

Boron (DTPA Sorbitol)

Boron	0.160	0.100	mg/L	1	B2D1511	04/15/2022	04/18/2022	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	40.0	25.0	mg/kg	1	B2D1502	04/15/2022	04/25/2022	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	97.2 %	50-150	"	"	"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2D1604	04/16/2022	04/20/2022	U
1,3,5-Trimethylbenzene	0.0112	0.00200	"	"	"	"	"	
Benzene	ND	0.00200	"	"	"	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	"	"	U
Toluene	ND	0.00200	"	"	"	"	"	U
Xylenes, total	ND	0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	1.46	0.200	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	106 %	70-130	"	"	"	"	"	
Surrogate: Toluene-d8	98.9 %	70-130	"	"	"	"	"	

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: [none]
Project: Noble - Sandau #34-12F

WH-FS-01@6'

4/14/2022 8:22:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y204311-01 (Soil)

GBTEX+TMBs by 8260D

Surrogate: 4-Bromofluorobenzene	99.6 %	70-130	B2D16 04	04/16/2022	04/20/2022
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Metals by Saturated Paste by EPA 6010

Calcium	2.14	0.499	meq/L	10	[CALC]	04/15/2022	04/19/2022
Magnesium	ND	0.823	"	"	"	"	"
Sodium	2.04	0.435	"	"	"	"	"

PAH by 8270D SIM

1-Methylnaphthalene	0.0444	0.00364	0.0067	mg/Kg	10	L611374	04/18/2022	04/20/2022	
2-Methylnaphthalene	0.0139	0.00645	0.0067	"	"	"	"	"	
Acenaphthene	0.0132	0.00304	0.0067	"	"	"	"	"	
Anthracene	0.00509	0.00334	0.0067	"	"	"	"	"	J
Benzo(a)anthracene	ND	0.00493	0.0067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.00468	0.0067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.00585	0.0067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.00437	0.0067	"	"	"	"	"	
Chrysene	ND	0.00624	0.0067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.00614	0.0067	"	"	"	"	"	
Fluoranthene	ND	0.00394	0.0067	"	"	"	"	"	
Fluorene	0.0315	0.00286	0.0067	"	"	"	"	"	

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: Noble - Sandau #34-12F

WH-FS-01@6'

4/14/2022 8:22:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, Inc.
Y204311-01 (Soil)

PAH by 8270D SIM

Indeno(1,2,3-cd)pyrene	ND	0.00627	0.0067	mg/Kg	10	L611374	04/18/2022	04/20/2022
Naphthalene	0.0171	0.00484	0.0067	"	"	"	"	"
Pyrene	0.023	0.00643	0.0067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	48.8 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	58.6 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	54.6 %		29-110			"	"	"

pH in Soil by 9045D

pH	7.90			pH Units	1	B2D1520	04/18/2022	04/19/2022
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SAR by 20B Saturated Paste

SAR	1.72			SAR	1	B2D1507	04/15/2022	04/19/2022
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.580		0.00500	mmhos/cm	1	B2D1515	04/18/2022	04/19/2022
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Total Metals by 6020B

Arsenic	1.25	0.0855	0.25	mg/Kg	5	L613295	04/28/2022	04/29/2022
Barium	42.7	0.042	0.25	"	"	"	"	"

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: Noble - Sandau #34-12F

WH-FS-01@6'

4/14/2022 8:22:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, LLC.
Y204311-01 (Soil)

Total Metals by 6020B

Cadmium	0.0629	0.0259	0.25	mg/Kg	5	L613295	04/28/2022	04/29/2022	J
Copper	4.75	0.0806	0.25	"	"	"	"	"	
Lead	10.5	0.031	0.25	"	"	"	"	"	
Nickel	4.32	0.0633	0.25	"	"	"	"	"	
Selenium	0.2	0.103	0.25	"	"	"	"	"	J
Silver	0.021	0.0067	0.25	"	"	"	"	"	J
Zinc	20	0.534	2.5	"	"	"	"	"	

Total Metals by 7196A

Chromium, Hexavalent	ND	0.244	0.5	mg/Kg	1	L614196	04/14/2022	05/04/2022	
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Origins Laboratory, Inc.



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

Martin C Eckert III
Project Number: [none]
Project: Noble - Sandau #34-12F

FL-SS-01@4'

4/14/2022 7:45:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y204311-02 (Soil)

Boron (DTPA Sorbitol)

Boron	ND	0.100	mg/L	1	B2D1511	04/15/2022	04/18/2022	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2D1502	04/15/2022	04/25/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	81.2 %	50-150			"	"	"
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2D1604	04/16/2022	04/20/2022	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	U
Benzene	ND	0.00200	"	"	"	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	"	"	U
Toluene	ND	0.00200	"	"	"	"	"	U
Xylenes, total	ND	0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	103 %	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: [none]
Project: Noble - Sandau #34-12F

FL-SS-01@4'

4/14/2022 7:45:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y204311-02 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	99.9 %	70-130	B2D16 04	04/16/2022	04/20/2022
Surrogate: 4-Bromofluorobenzene	99.7 %	70-130	"	"	"

Metals by Saturated Paste by EPA 6010

Calcium	1.74	0.499	meq/L	10	[CALC]	04/15/2022	04/19/2022
Magnesium	ND	0.823	"	"	"	"	"
Sodium	ND	0.435	"	"	"	"	"

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.000364	0.00067	mg/Kg	1	L611374	04/18/2022	04/20/2022
2-Methylnaphthalene	ND	0.000645	0.00067	"	"	"	"	"
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"
Anthracene	ND	0.000334	0.00067	"	"	"	"	"
Benzo(a)anthracene	0.000835	0.000493	0.00067	"	"	"	"	"
Benzo(a)pyrene	0.00157	0.000468	0.00067	"	"	"	"	"
Benzo(b)fluoranthene	0.00135	0.000585	0.00067	"	"	"	"	"
Benzo(k)fluoranthene	0.00116	0.000437	0.00067	"	"	"	"	"
Chrysene	0.00152	0.000624	0.00067	"	"	"	"	"
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"
Fluoranthene	0.00169	0.000394	0.00067	"	"	"	"	"
Fluorene	ND	0.000286	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: [none]
Project: Noble - Sandau #34-12F

FL-SS-01@4'

4/14/2022 7:45:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, Inc.
Y204311-02 (Soil)

PAH by 8270D SIM

Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	mg/Kg	1	L611374	04/18/2022	04/20/2022
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"
Pyrene	0.0023	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	45.5 %	33-115	"	"	"
Surrogate: 4-Terphenyl-d14	57.2 %	33-122	"	"	"
Surrogate: Nitrobenzene-d5	50.9 %	29-110	"	"	"

pH in Soil by 9045D

pH	7.99	pH Units	1	B2D1520	04/18/2022	04/19/2022
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SAR by 20B Saturated Paste

SAR	0.155	SAR	1	B2D1507	04/15/2022	04/19/2022
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.262	0.00500	mmhos/cm	1	B2D1515	04/18/2022	04/19/2022
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Origins Laboratory, Inc.



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

Martin C Eckert III
Project Number: [none]
Project: Noble - Sandau #34-12F

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
Batch B2D1502 - EPA 3550B										
Blank (B2D1502-BLK1)					Prepared: 04/15/2022 Analyzed: 04/18/2022					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	22		"	24.9		89.2	50-150			

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: Noble - Sandau #34-12F

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 B2D1502 - EPA 3550B

LCS (B2D1502-BS1)

Prepared: 04/15/2022 Analyzed: 04/18/2022

Diesel (C10-C28)	804	50.0	mg/kg	1000		80.4	70-130			
Residual Range Organics (C28-C40)	943	200	"	1000		94.3	70-130			
Surrogate: o-Terphenyl	45		"	49.8		91.1	50-150			

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: Noble - Sandau #34-12F

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
Batch B2D1502 - EPA 3550B										
Matrix Spike (B2D1502-MS1)		Source: Y204299-01			Prepared: 04/15/2022 Analyzed: 04/18/2022					
Diesel (C10-C28)	902	50.0	mg/kg	1000	86.2	81.5	70-130			
Residual Range Organics (C28-C40)	1040	200	"	1000	69.1	96.7	70-130			
Surrogate: o-Terphenyl	49		"	49.8		98.8	50-150			

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: Noble - Sandau #34-12F

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
Batch B2D1502 - EPA 3550B										
Matrix Spike Dup (B2D1502-MSD1)		Source: Y204299-01			Prepared: 04/15/2022 Analyzed: 04/18/2022					
Diesel (C10-C28)	1010	50.0	mg/kg	1000	86.2	92.7	70-130	11.6	35	
Residual Range Organics (C28-C40)	1080	200	"	1000	69.1	101	70-130	4.24	35	
Surrogate: o-Terphenyl	55		"	49.8		111	50-150			

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: Noble - Sandau #34-12F

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
Batch B2D1604 - EPA 5030 (soil)										
Blank (B2D1604-BLK1)					Prepared: 04/16/2022 Analyzed: 04/20/2022					
1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.0100	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.8	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: [none]
Project: Noble - Sandau #34-12F

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 B2D1604 - EPA 5030 (soil)

LCS (B2D1604-BS1)

Prepared: 04/16/2022 Analyzed: 04/20/2022

1,2,4-Trimethylbenzene	0.0967	0.00200	mg/kg	0.100		96.7	70-130			
1,3,5-Trimethylbenzene	0.106	0.00200	"	0.100		106	70-130			
Benzene	0.103	0.00200	"	0.100		103	70-130			
Ethylbenzene	0.107	0.00200	"	0.100		107	70-130			
Naphthalene	0.0988	0.0100	"	0.100		98.8	70-130			
Toluene	0.0914	0.00200	"	0.100		91.4	70-130			
o-Xylene	0.0975	0.00200	"	0.100		97.5	70-130			
m,p-Xylene	0.200	0.00400	"	0.200		100	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		111	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.9	70-130			

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: [none]
Project: Noble - Sandau #34-12F

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 B2D1604 - EPA 5030 (soil)

Matrix Spike (B2D1604-MS1)		Source: Y204299-01			Prepared: 04/16/2022 Analyzed: 04/20/2022					
1,2,4-Trimethylbenzene	0.0944	0.00200	mg/kg	0.100	ND	94.4	70-130			
1,3,5-Trimethylbenzene	0.104	0.00200	"	0.100	ND	104	70-130			
Benzene	0.0998	0.00200	"	0.100	ND	99.8	70-130			
Ethylbenzene	0.106	0.00200	"	0.100	ND	106	70-130			
Naphthalene	0.0905	0.0100	"	0.100	0.000880	89.6	70-130			
Toluene	0.0898	0.00200	"	0.100	ND	89.8	70-130			
o-Xylene	0.0964	0.00200	"	0.100	ND	96.4	70-130			
m,p-Xylene	0.196	0.00400	"	0.200	ND	98.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	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: [none]
Project: Noble - Sandau #34-12F

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 B2D1604 - EPA 5030 (soil)										
Matrix Spike Dup (B2D1604-MSD1)		Source: Y204299-01			Prepared: 04/16/2022 Analyzed: 04/20/2022					
1,2,4-Trimethylbenzene	0.0931	0.00200	mg/kg	0.100	ND	93.1	70-130	1.39	20	
1,3,5-Trimethylbenzene	0.102	0.00200	"	0.100	ND	102	70-130	2.25	20	
Benzene	0.0977	0.00200	"	0.100	ND	97.7	70-130	2.17	20	
Ethylbenzene	0.102	0.00200	"	0.100	ND	102	70-130	3.30	20	
Naphthalene	0.0919	0.0100	"	0.100	0.000880	91.0	70-130	1.54	20	
Toluene	0.0880	0.00200	"	0.100	ND	88.0	70-130	2.09	20	
o-Xylene	0.0941	0.00200	"	0.100	ND	94.1	70-130	2.37	20	
m,p-Xylene	0.190	0.00400	"	0.200	ND	95.1	70-130	3.05	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		104	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.8	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: [none]
Project: Noble - Sandau #34-12F

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 B2D1515 - NO PREP

Blank (B2D1515-BLK1)

Prepared: 04/18/2022 Analyzed: 04/19/2022

Specific Conductance (EC) 0.000900 0.00500 mmhos/cm

Duplicate (B2D1515-DUP1)

Source: Y204302-09

Prepared: 04/18/2022 Analyzed: 04/19/2022

Specific Conductance (EC) 0.892 0.00500 mmhos/cm 0.802 10.6 25

Batch B2D1520 - NO PREP

Duplicate (B2D1520-DUP1)

Source: Y204302-09

Prepared: 04/18/2022 Analyzed: 04/19/2022

pH 7.46 pH Units 7.69 3.04 25

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: Noble - Sandau #34-12F

Total Metals by 6020B - Quality Control Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch L613295 - 3050B										
MSD (L 94018-MSD-L613295)			Source: Y204311-01			Prepared: Analyzed: 04/29/2022				
Cadmium	0.52	0.0259	mg/Kg	0.463	0.0629	99	75-125	3	80	
Zinc	46.1	0.534	"	23.2	20	113	75-125	0.4	80	
Silver	0.477	0.0067	"	0.463	0.021	98	75-125	1.4	80	
Selenium	3.98	0.103	"	4.63	0.2	82	75-125	4.9	80	
Nickel	6.85	0.0633	"	2.32	4.32	109	75-125	3.1	80	
Barium	53	0.042	"	4.63	42.7	222	75-125	13	80	*
Arsenic	3.29	0.0855	"	2.32	1.25	88	75-125	4.1	80	
Lead	10.9	0.031	"	2.32	10.5	17	75-125	94.6	80	*
Copper	7.72	0.0806	"	2.32	4.75	128	75-125	7	80	*
MS (L 94018-MS-L613295)			Source: Y204311-01			Prepared: Analyzed: 04/29/2022				
Lead	30.5	0.031	mg/Kg	2.43	10.5	822	75-125			*
Zinc	45.9	0.534	"	24.3	20	106	75-125			
Silver	0.484	0.0067	"	0.487	0.021	95	75-125			
Nickel	7.07	0.0633	"	2.43	4.32	113	75-125			
Copper	8.28	0.0806	"	2.43	4.75	145	75-125			*
Cadmium	0.536	0.0259	"	0.487	0.0629	97	75-125			
Barium	46.5	0.042	"	4.87	42.7	78	75-125			
Arsenic	3.43	0.0855	"	2.43	1.25	90	75-125			
Selenium	4.18	0.103	"	4.87	0.2	82	75-125			
LCS (LCS-L613295)			Prepared: Analyzed: 04/29/2022							
Selenium	5	0.103	mg/Kg	5		100	80-120			
Arsenic	2.55	0.0855	"	2.5		102	80-120			
Barium	4.72	0.042	"	5		94	80-120			
Cadmium	0.472	0.0259	"	0.5		94	80-120			
Copper	2.56	0.0806	"	2.5		102	80-120			

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: Noble - Sandau #34-12F

Total Metals by 6020B - Quality Control Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch L613295 - 3050B

LCS (LCS-L613295)

Prepared: Analyzed: 04/29/2022

Nickel	2.37	0.0633	mg/Kg	2.5		95	80-120			
Lead	2.4	0.031	"	2.5		96	80-120			
Zinc	23.6	0.534	"	25		94	80-120			
Silver	0.491	0.0067	"	0.5		98	80-120			

LRB (LRB-L613295)

Prepared: Analyzed: 04/29/2022

Selenium	ND	0.25	mg/Kg				-			
Silver	ND	0.25	"				-			
Nickel	ND	0.25	"				-			
Lead	ND	0.25	"				-			
Cadmium	ND	0.25	"				-			
Barium	ND	0.25	"				-			
Arsenic	ND	0.25	"				-			
Zinc	ND	2.5	"				-			
Copper	ND	0.25	"				-			

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: Noble - Sandau #34-12F

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch L614196 -										
DUP (L 90482-DUP)		Source: 90482			Prepared: Analyzed: 05/04/2022					
Chromium, Hexavalent	ND	2.44	mg/Kg		90482	-	0	20		
MS (L 90482-MS)		Source: 90482			Prepared: Analyzed: 05/04/2022					
Chromium, Hexavalent	ND	2.44	mg/Kg	7.86	90482	0	75-125			*
LCS (LCS)					Prepared: Analyzed: 05/04/2022					
Chromium, Hexavalent	7.36	0.244	mg/Kg	8		92	75-125			
LRB (LRB)					Prepared: Analyzed: 05/04/2022					
Chromium, Hexavalent	0.359	0.5	mg/Kg			-				J

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

Martin C Eckert III
Project Number: [none]
Project: Noble - Sandau #34-12F

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 L611374 - 3550B

MSD (L 93982-MSD-L611374)		Source: 93982			Prepared: 04/18/2022 Analyzed: 04/20/2022					
Dibenz(a,h)anthracene	0.0776	0.000614	mg/Kg	0.166	<0.000614	46.7	30-130	3.5	30	
Naphthalene	0.0831	0.000484	"	0.166	<0.000484	50	30-130	1.2	30	
Indeno(1,2,3-cd)pyrene	0.0685	0.000627	"	0.166	<0.000627	41.2	30-130	2.6	30	
Fluorene	0.0887	0.000286	"	0.166	<0.000286	53.4	30-130	0.6	30	
Benzo(a)anthracene	0.0949	0.000493	"	0.166	<0.000493	57.1	30-130	3.9	30	
Fluoranthene	0.0925	0.000394	"	0.166	<0.000394	55.7	30-130	3.1	30	
Pyrene	0.0909	0.000643	"	0.166	<0.000643	54.7	30-130	0.3	30	
2-Methylnaphthalene	0.0819	0.000645	"	0.166	<0.000645	49.3	30-130	0.3	30	
Benzo(k)fluoranthene	0.0939	0.000437	"	0.166	<0.000437	56.5	30-130	1.7	30	
1-Methylnaphthalene	0.0822	0.000364	"	0.166	<0.000364	49.5	30-130	0.9	30	
Benzo(a)pyrene	0.0952	0.000468	"	0.166	<0.000468	57.3	30-130	1.3	30	
Anthracene	0.0872	0.000334	"	0.166	<0.000334	52.5	30-130	0.1	30	
Acenaphthene	0.0842	0.000304	"	0.166	<0.000304	50.7	30-130	0.4	30	
Chrysene	0.0941	0.000624	"	0.166	<0.000624	56.6	30-130	3.2	30	
Benzo(b)fluoranthene	0.0758	0.000585	"	0.166	<0.000585	45.6	30-130	0.2	30	
Surrogate: Nitrobenzene-d5	52.5		"	0.331	165	52.5	29-110			
Surrogate: 4-Terphenyl-d14	57.4		"	0.331	185	57.4	33-122			
Surrogate: 2-Fluorobiphenyl	47.1		"	0.331	150	47.1	33-115			

MS (L 93982-MS-L611374)		Source: 93982			Prepared: 04/18/2022 Analyzed: 04/20/2022					
Dibenz(a,h)anthracene	0.0749	0.000614	mg/Kg	0.167	<0.000614	44.8	30-130			
Fluorene	0.0893	0.000286	"	0.167	<0.000286	53.4	30-130			
Indeno(1,2,3-cd)pyrene	0.0667	0.000627	"	0.167	<0.000627	39.9	30-130			
Naphthalene	0.0821	0.000484	"	0.167	<0.000484	49.1	30-130			
Pyrene	0.0906	0.000643	"	0.167	<0.000643	54.2	30-130			
Chrysene	0.0911	0.000624	"	0.167	<0.000624	54.5	30-130			
Benzo(k)fluoranthene	0.0923	0.000437	"	0.167	<0.000437	55.2	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: [none]
Project: Noble - Sandau #34-12F

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 L611374 - 3550B

MS (L 93982-MS-L611374)		Source: 93982			Prepared: 04/18/2022 Analyzed: 04/20/2022					
1-Methylnaphthalene	0.0814	0.000364	mg/Kg	0.167	<0.000364	48.7	30-130			
Benzo(a)pyrene	0.0939	0.000468	"	0.167	<0.000468	56.2	30-130			
Benzo(a)anthracene	0.0912	0.000493	"	0.167	<0.000493	54.6	30-130			
Anthracene	0.0871	0.000334	"	0.167	<0.000334	52.1	30-130			
Acenaphthene	0.0846	0.000304	"	0.167	<0.000304	50.6	30-130			
2-Methylnaphthalene	0.0816	0.000645	"	0.167	<0.000645	48.8	30-130			
Fluoranthene	0.0896	0.000394	"	0.167	<0.000394	53.6	30-130			
Benzo(b)fluoranthene	0.0756	0.000585	"	0.167	<0.000585	45.2	30-130			
Surrogate: Nitrobenzene-d5	51.3		"	0.333	165	51.3	29-110			
Surrogate: 4-Terphenyl-d14	56.7		"	0.333	185	56.7	33-122			
Surrogate: 2-Fluorobiphenyl	46.8		"	0.333	150	46.8	33-115			

LCS (LCS-L611374)		Prepared: 04/18/2022 Analyzed: 04/20/2022								
Chrysene	0.0948	0.000624	mg/Kg	0.167		56.7	30-130			
Dibenz(a,h)anthracene	0.0771	0.000614	"	0.167		46.1	30-130			
Fluoranthene	0.0941	0.000394	"	0.167		56.3	30-130			
Indeno(1,2,3-cd)pyrene	0.0691	0.000627	"	0.167		41.3	30-130			
Benzo(k)fluoranthene	0.0983	0.000437	"	0.167		58.8	30-130			
Pyrene	0.095	0.000643	"	0.167		56.8	30-130			
Fluorene	0.0906	0.000286	"	0.167		54.2	30-130			
1-Methylnaphthalene	0.0861	0.000364	"	0.167		51.5	30-130			
Benzo(a)pyrene	0.0983	0.000468	"	0.167		58.8	30-130			
Benzo(a)anthracene	0.0949	0.000493	"	0.167		56.8	30-130			
Anthracene	0.0899	0.000334	"	0.167		53.8	30-130			
Acenaphthene	0.0872	0.000304	"	0.167		52.2	30-130			
2-Methylnaphthalene	0.0842	0.000645	"	0.167		50.4	30-130			
Naphthalene	0.086	0.000484	"	0.167		51.4	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: [none]
Project: Noble - Sandau #34-12F

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 L611374 - 3550B

LCS (LCS-L611374)

Prepared: 04/18/2022 Analyzed: 04/20/2022

Benzo(b)fluoranthene	0.0781	0.000585	mg/Kg	0.167		46.7	30-130			
Surrogate: Nitrobenzene-d5	52.8		"	0.333		52.8	29-110			
Surrogate: 4-Terphenyl-d14	60		"	0.333		60	33-122			
Surrogate: 2-Fluorobiphenyl	48.3		"	0.333		48.3	33-115			

LRB (LRB-L611374)

Prepared: 04/18/2022 Analyzed: 04/20/2022

Chrysene	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	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Pyrene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	57.6		"	0.333		57.6	29-110			
Surrogate: 4-Terphenyl-d14	62.1		"	0.333		62.1	33-122			
Surrogate: 2-Fluorobiphenyl	50.1		"	0.333		50.1	33-115			

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Eagle Environmental Consulting, Inc.

8000 W 44th Ave

Wheat Ridge CO 80033

Martin C Eckert III

Project Number: [none]

Project: Noble - Sandau #34-12F

Notes and Definitions

U Sample is Non-Detect.

J Estimated Value. Analyte below reported quantitation limit.

* QC Failure

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

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.



May 20, 2022

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - Sandau #34-12F

Project Number - [none]

Attached are your analytical results for Noble - Sandau #34-12F received by Origins Laboratory, Inc. May 11, 2022. This project is associated with Origins project number Y205241-01.

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

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

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

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

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

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



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

Eagle Environmental Consulting, Inc.

8000 W 44th Ave

Wheat Ridge CO 80033

Martin C Eckert III

Project Number: [none]

Project: Noble - Sandau #34-12F

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Background-01@1'	Y205241-01	Soil	April 14, 2022 9:05	05/11/2022 09:00

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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: [none]
Project: Noble - Sandau #34-12F

Origins Laboratory

Sample Receipt Checklist

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

Origins Work Order: Y205241

Client: Eagle

Client Project ID: Sandau 34-12F

Checklist Completed by: SG

Shipped Via: HD

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

Date/time completed: 5/11/22

Airbill #: N/A

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid

☐ Water

☐ Other:

Cooler Number/Temperature: 1, 3.4 °C

(Describe)

Thermometer ID: T004

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"/>			
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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽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 HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with Na ₂ AsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" 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) JB

3-12-22
Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini

Jen Pellegrini, Project Manager

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: [none]
Project: Noble - Sandau #34-12F

Background-01@1'
4/14/2022 9:05:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, LLC.
Y205241-01 (Soil)

Total Metals by 6020B

Arsenic	0.755	0.0855	0.25	mg/Kg	5	L616411	05/16/2022	05/18/2022
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Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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

Martin C Eckert III
Project Number: [none]
Project: Noble - Sandau #34-12F

Total Metals by 6020B - Quality Control Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch L616411 - 3050B										
MSD (L 91964-MSD-L616411)	Source: 91964				Prepared: 05/16/2022 Analyzed: 05/18/2022					
Arsenic	1.95	0.0855	mg/Kg	2.45	0.433	62	75-125	9.6	80	*
MS (L 91964-MS-L616411)	Source: 91964				Prepared: 05/16/2022 Analyzed: 05/18/2022					
Arsenic	1.77	0.0855	mg/Kg	2.37	0.433	56	75-125			*
LCS (LCS-L616411)					Prepared: 05/16/2022 Analyzed: 05/18/2022					
Arsenic	2.3	0.0855	mg/Kg	2.5		92	80-120			
LRB (LRB-L616411)					Prepared: 05/16/2022 Analyzed: 05/18/2022					
Arsenic	ND	0.25	mg/Kg				-			

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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Eagle Environmental Consulting, Inc.

8000 W 44th Ave

Wheat Ridge CO 80033

Martin C Eckert III

Project Number: [none]

Project: Noble - Sandau #34-12F

Notes and Definitions

* QC Failure

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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