Wellhead Closure Checklist

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

Additional attachments (optional):		Pit Closure		Tank Battery Closure		Flowline Closure		Partially Buried Vault Closure
		—		—		—		—

Site Name & COGCC Facility Number:	*Date:*	*Remediation Project #:*
HSR-Tudor #11-31A	04/21/23	27627
Associated Wells: 05-123-15216	*Age of Site:* Years	*Number of Photos Attached:* 2
Location: *(GPS coordinates of wellhead or southeastern most wellhead for multiple)* 40.267140 / -104.708490		*Estimated Facility Size (acres):*

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

Good Condition

USCS Soil Type: Silty SAND	*Estimated Depth to Groundwater:* Approx. 20-23'

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	05-123-15216					
Age	Years					
Condition of surface around wellhead	Good - Per Crew					
PID Readings	N/A - Excavated Upon Arrival					
Condition of subsurface (staining present	Good - No Odor/Staining					
PID Readings	2.3	2.8	2.7	2.9	4.0	
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?

[No] Yes - less than 10 cubic yards Yes - more than 10 cubic yards

Total number of samples field screened: 5	*Total number of samples collected:* 5
Highest PID Reading: 4.0	*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?

[No] Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils

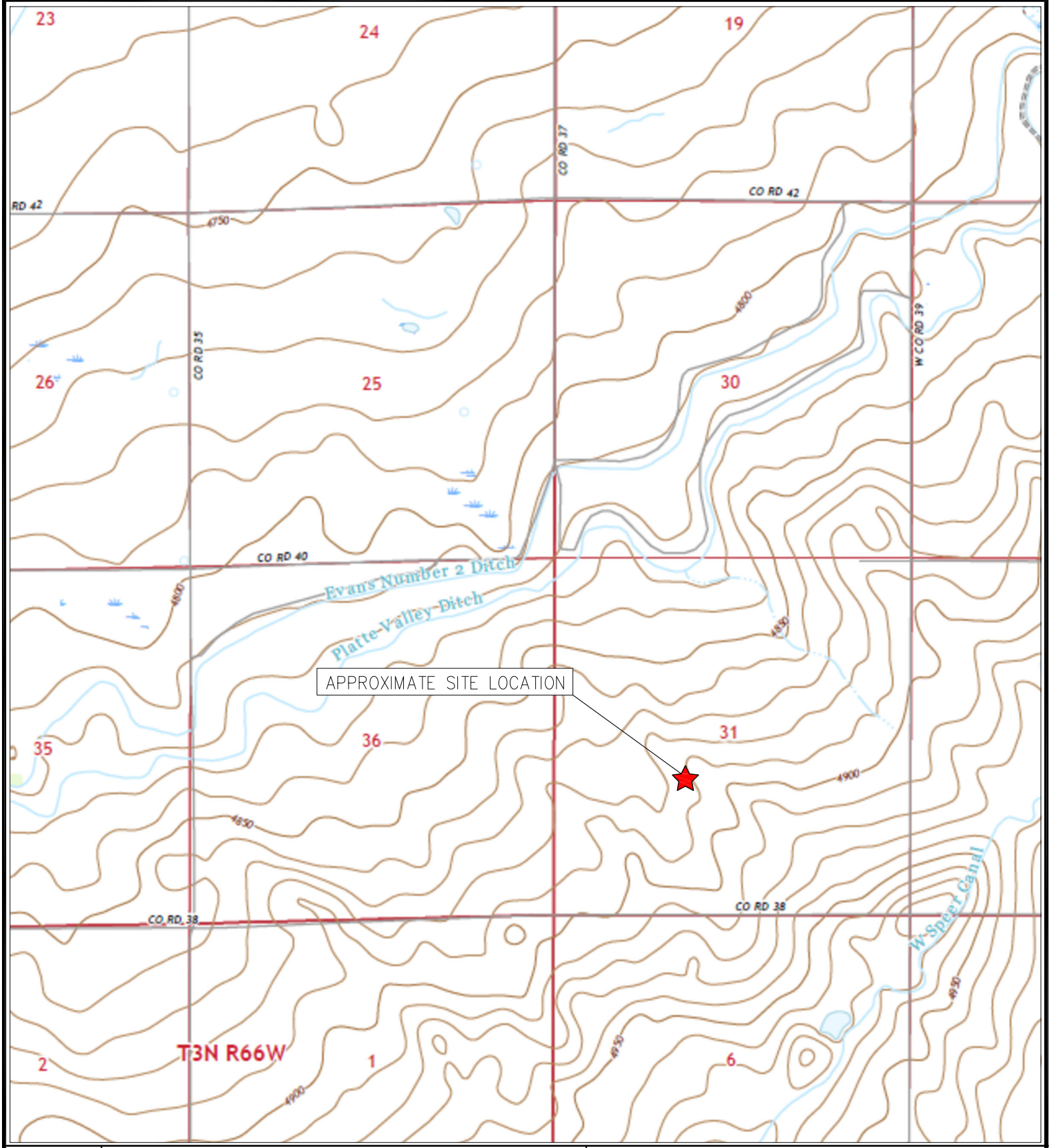
Measured depth to groundwater:	*Was remedial groundwater removal conducted?* Yes No
Date Groundwater was encountered:	*Commencement date of removal:*
Sheen on groundwater? Yes No	*Volume of groundwater removed prior to sampling:*
Free product observed? Yes No N/A	*Volume of groundwater removed post sampling:*
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



TOPOGRAPHIC SITE LOCATION MAP
HSR–TUDOR #11–31A
CLOSURE ASSESSMENT
40.267140 / –104.708490
NE¼ SW¼ SEC.31 T4N R65W 6PM
WELD COUNTY, COLORADO
API # 05–123–15216
REMEDIATION # 27627

N

SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP
LA SALLE, CO QUADRANGLE 2022

FIGURE NO. 1

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

LEGEND

- FORMER HSR-TUDOR #11-31A WELLHEAD (PLUGGED AND ABANDONED)
- ASSOCIATED SEPARATOR
- APPROXIMATE FLOWLINE LOCATION

0 N 200'

APPROXIMATE SCALE IN FEET

AERIAL SITE LOCATION MAP
HSR-TUDOR #11-31A
CLOSURE ASSESSMENT
40.267140 / -104.708490
NE¼ SW¼ SEC.31 T4N R65W 6PM
WELD COUNTY, COLORADO
API # 05-123-15216
REMEDIATION # 27627

FIGURE NO.
2

DRAWN BY:
CT

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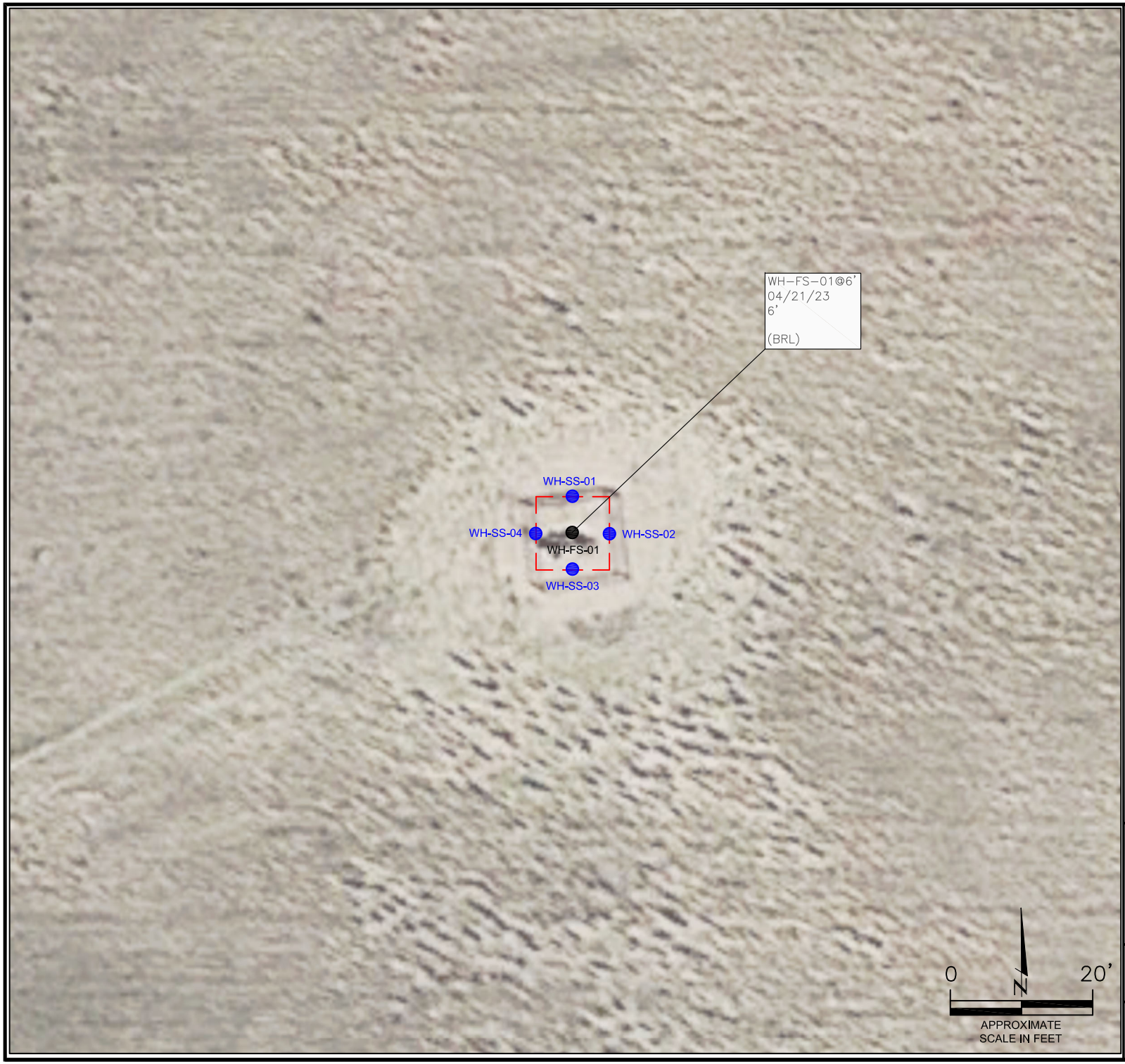
Ph: 303-433-0479 • F: 303-325-5449



LEGEND

WELLHEAD ASSESSMENT BOUNDARIES

SS-02 — APPROXIMATE LOCATION OF SOIL SAMPLES FIELD SCREENED, ONLY, WITH PHOTOIONIZATION DETECTOR

SS-02 — APPROXIMATE LOCATION OF SOIL SAMPLES SUBMITTED FOR LABORATORY ANALYSIS

PARAMETERS

SAMPLE LOCATION
DATE
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 TRIMETHLYBENZENE (mg/kg)
1,3,5-TMB = 1,3,5 TRIMETHLYBENZENE (mg/kg)
Brn= BORON (mg/L)
EC = SPECIFIC CONDUCTANCE (mmhos/cm)
SAR= SODIUM ADSORPTION RATIO
pH = pH (pH UNITS)
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (mg/kg)

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

(BRL) = ALL VALUES BELOW REGULATORY LIMITS

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

NOTES:
VALUES PRESENTED IN **BOLD** EXCEED ECMC TABLE 915-1 REGULATORY LIMITS.

ECMC = ENERGY & CARBON MANAGEMENT COMMISSION

SOIL ANALYTICAL MAP
HSR-TUDOR #11-31A
CLOSURE ASSESSMENT
40.267140 / -104.708490
NE¼ SW¼ SEC.31 T4N R65W 6PM
WELD COUNTY, COLORADO
API # 05-123-15216
REMEDIATION # 27627

FIGURE NO. 3

DRAWN BY: CT

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

TABLES

Table 1: Photoionization Detector Reading Summary

Table 2: Soil Analytical Results Summary

TABLE 1
PHOTOIONIZATION DETECTOR READING SUMMARY
HSR-TUDOR #11-31A
CLOSURE ASSESSMENT
40.267140 / -104.708490
NE¼ SW¼ SEC.31 T4N R65W 6PM
WELD COUNTY, COLORADO
API # 05-123-15216
REMEDIATION # 27627

Sample Location (Latitude/Longitude)	**Date**	**Approximate Depth** (feet)	**PID Reading** (ppm-v)	**Lab Submission** (Y/N)
WH-SS-01 @ 5' (40.267162 / -104.708511)	04/21/23	5	2.3	N
WH-SS-02 @ 5' (40.267147 / -104.708486)	04/21/23	5	2.8	N
WH-SS-03 @ 5' (40.267125 / -104.708509)	04/21/23	5	2.7	N
WH-SS-04 @ 5' (40.267145 / -104.708536)	04/21/23	5	2.9	N
WH-FS-01 @ 6' (40.267143 / -104.708511)	04/21/23	6	4.0	Y

(Y/N) = Yes or No
ppm-v = parts per million by volume
PID = Photoionization Detector

EAGLE ENVIRONMENTAL CONSULTING, LLC

TABLE 2
SOIL ANALYTICAL RESULTS SUMMARY
HSR-TUDOR #11-31A
CLOSURE ASSESSMENT
40.267140 / -104.708490
NE¼ SW¼ SEC.31 T4N R65W 6PM
WELD COUNTY, COLORADO
API # 05-123-15216
REMEDIATION # 27627

Sample Location				WH-FS-01 @ 6'
(Latitude / Longitude)				(40.267143 / -104.708511)
Sample Date				4/21/2023
Sample Depth				6'
PID Reading (ppm-v)				4.0
Regulatory Limits				
Chemical of Concern	**Units**	**ECMC Table 915-1 RSSLs**	**ECMC Table 915-1 GSSLs**	
VOCs				
Benzene	mg/kg	1.2	0.0026	<0.00200
Toluene	mg/kg	490	0.69	<0.00200
Ethylbenzene	mg/kg	5.8	0.78	<0.00200
Total Xylenes	mg/kg	58	9.9	<0.00200
1,2,4-Trimethylbenzene	mg/kg	30	0.0081	<0.00200
1,3,5-Trimethylbenzene	mg/kg	27	0.0087	<0.00200
TOTAL PETROLEUM HYDROCARBONS				
TPH-GRO	mg/kg	500	--	<0.200
TPH-DRO	mg/kg	500	--	<25.0
TPH-RRO	mg/kg	500	--	<100
POLYCYCLIC AROMATIC HYDROCARBONS				
1-Methyl-naphthalene	mg/kg	18	0.006	<0.00201
2-Methyl-naphthalene	mg/kg	24	0.019	<0.00201
Acenaphthene	mg/kg	360	0.55	<0.00067
Anthracene	mg/kg	1800	5.8	<0.00067
Benzo(a)-anthracene	mg/kg	1.1	0.011	<0.00067
Benzo(a)-pyrene	mg/kg	0.11	0.24	<0.00067
Benzo(b)-fluoranthene	mg/kg	1.1	0.3	<0.00067
Benzo(k)-fluoranthene	mg/kg	11	2.9	<0.00067
Chrysene	mg/kg	110	9	<0.00067
Dibenzo(a,h)-anthracene	mg/kg	0.11	0.096	<0.00067
Fluoranthene	mg/kg	240	8.9	<0.00067
Fluorene	mg/kg	240	0.54	<0.00067
Indeno(1,2,3-cd)-pyrene	mg/kg	1.1	0.98	<0.00067
Naphthalene	mg/kg	2	0.0038	<0.00201
Pyrene	mg/kg	180	1.3	<0.00067
SOIL SUITABILITY (Inorganics)				
Boron	mg/L	2	--	0.108
pH	standard unit	6-8.3	--	7.99
Sodium Adsorption Ratio (SAR)	--	<6	--	1.69
Specific Conductance (EC)	mmhos/cm	<4	--	0.467

ECMC = Energy & Carbon Management 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 Adsoption Ratio

VOCs - Volatile Organic Compounds

RSSLs = Residential Soil Screening Levels
GSSLs = 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

Notes:
Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit and/or minimum detection limit.
Values presented in **BOLD** exceed ECMC Table 915-1 Regulatory Limits.

EAGLE ENVIRONMENTAL CONSULTING, LLC

ATTACHMENT A

Photo Log

HSR-Tudor #11-31A

API # 05-123-15216

Remediation # 27627

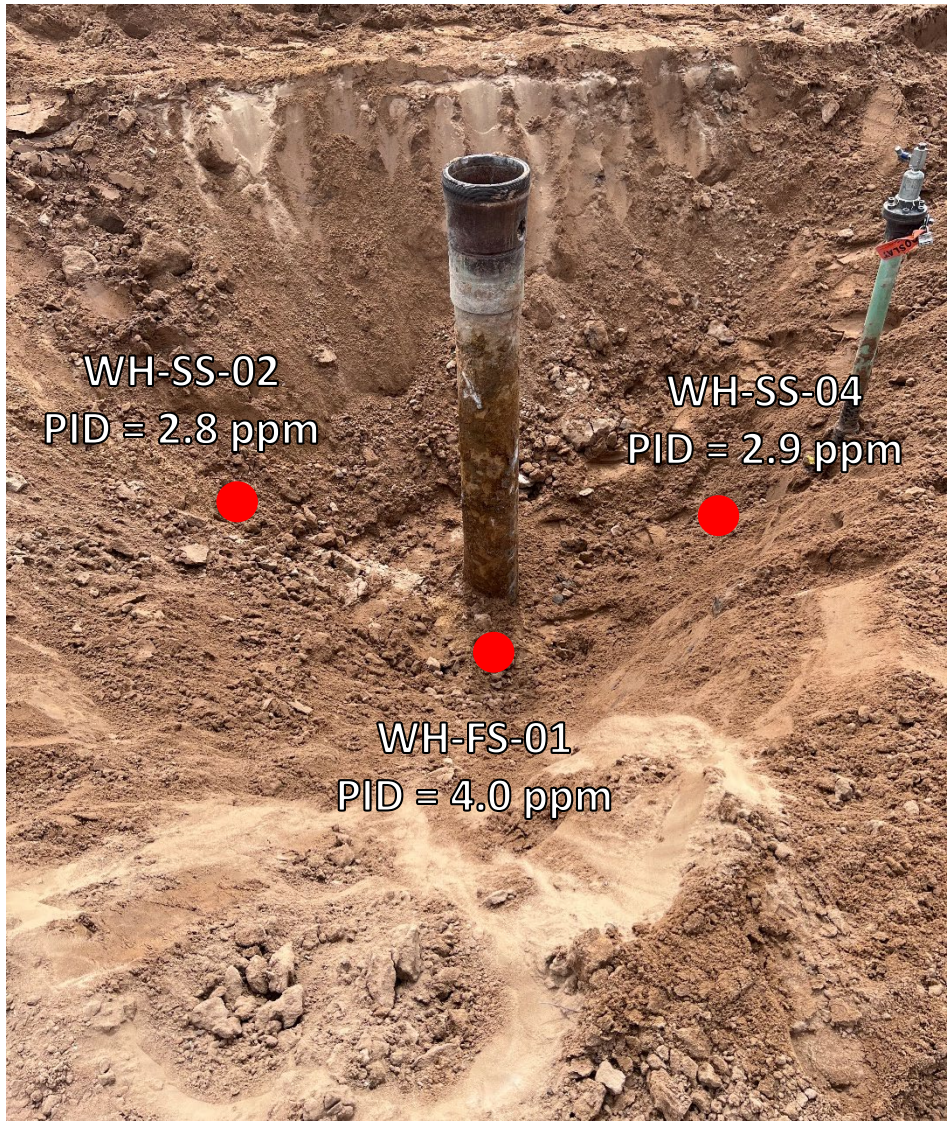
Closure Assessment

April 2023

EAGLE ENVIRONMENTAL CONSULTING, LLC

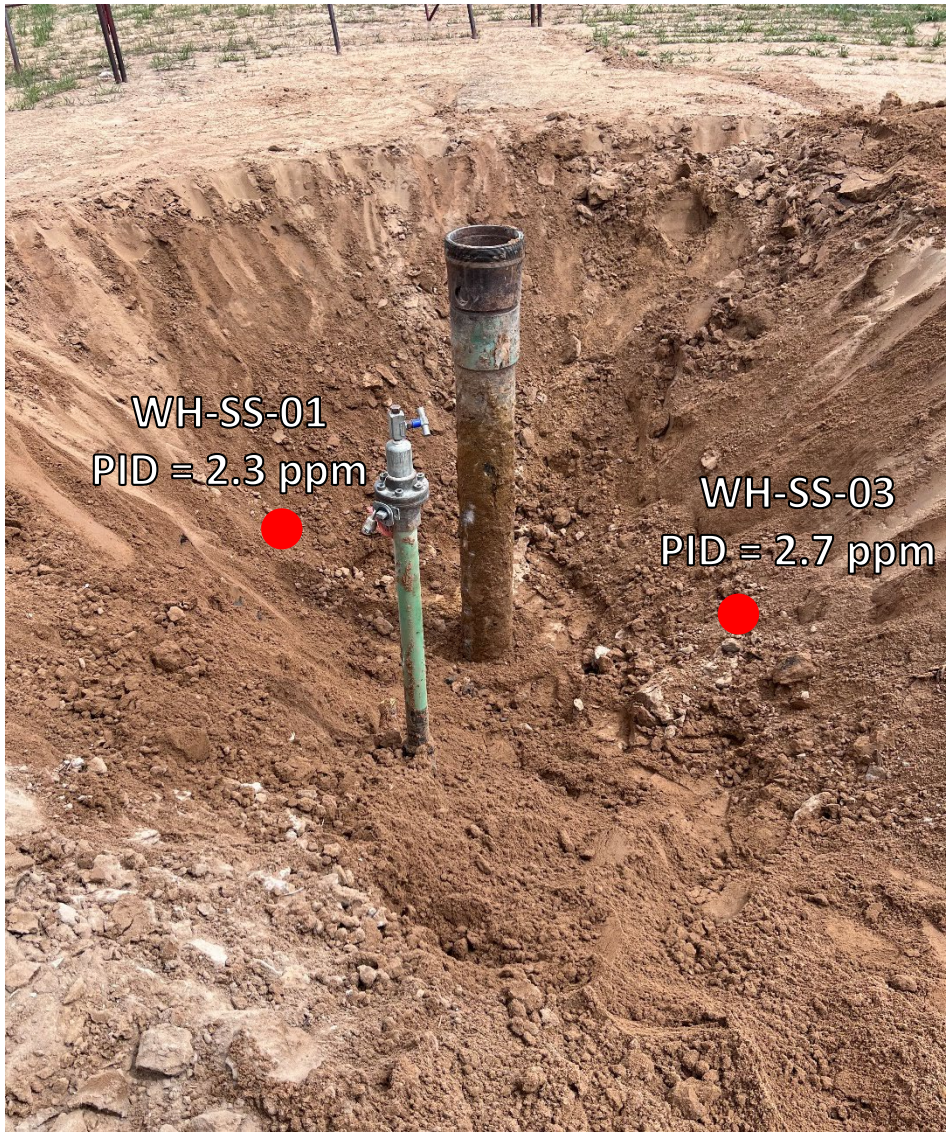
noble energy

Wellhead Excavation – 04/21/23



Looking south

No petroleum hydrocarbon staining or odor observed



Looking east northeast

No petroleum hydrocarbon staining or odor observed

ATTACHMENT B

Laboratory Analytical Report

ORIGINS LABORATORY, INC

May 04, 2023

Eagle Environmental Consulting, LLC

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - HSR - Tudor #11-31A **Project Number - [none]**

Attached are your analytical results for Noble - HSR - Tudor #11-31A received by Origins Laboratory, Inc. April 21, 2023. This project is associated with Origins project number Y304526-01.

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

THE NELAC INSTITUTE

ACCREDITED
TESTING CERT # 3494.01

ORIGINS LABORATORY, INC

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

Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@6'	Y304526-01	Soil	April 21, 2023 12:50	04/21/2023 14:17

Origins Laboratory, Inc.

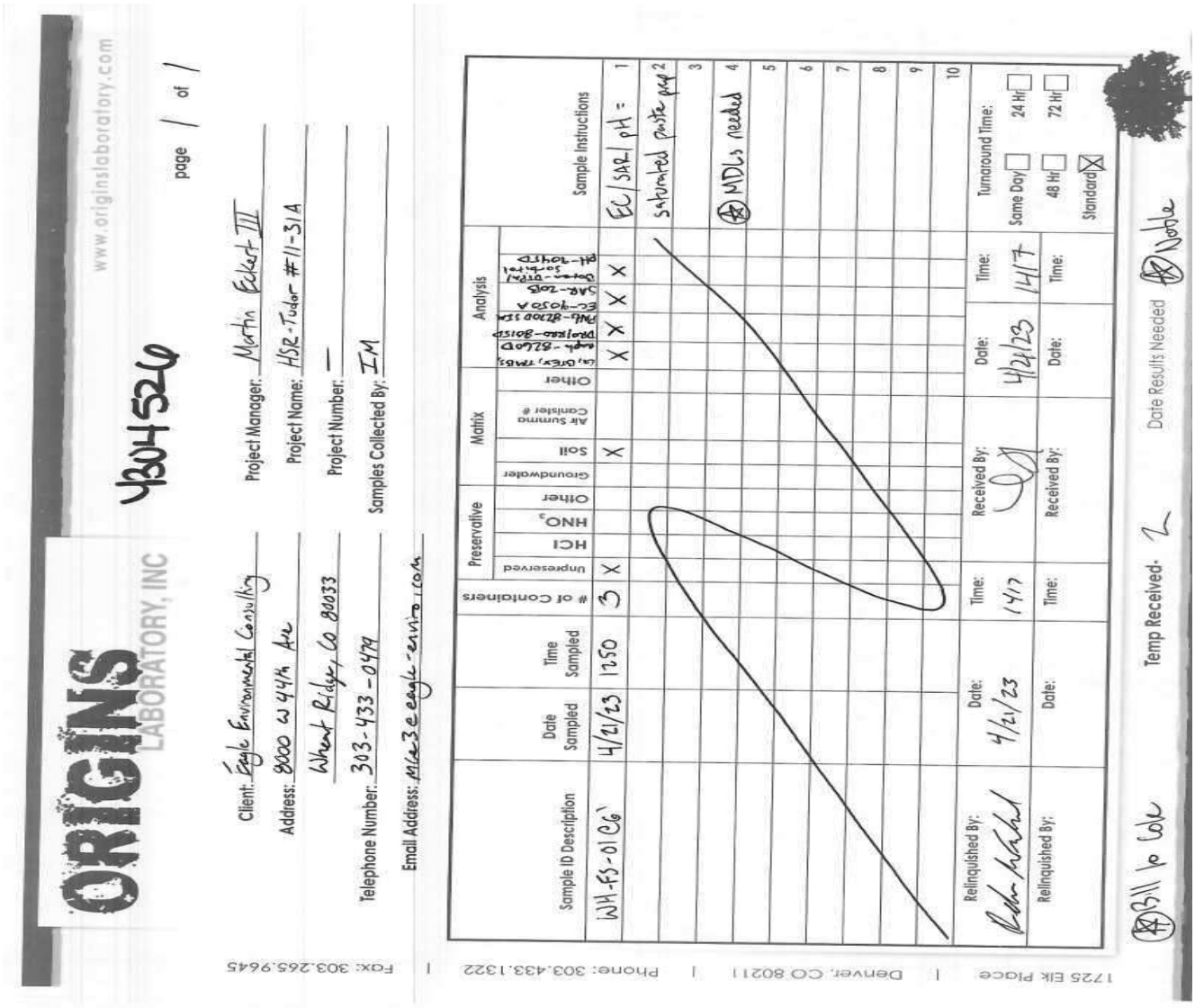
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jordan A. Bynon, Project Manager

ORIGINS LABORATORY, INC

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

Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A



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.

Jordan A. Bynon, Project Manager

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

Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: B045206
Client: Eagle
Client Project ID: Tudor #11-31A

Checklist Completed by: EHS/JBM
Shipped Via: HD (UPS, FedEx, Hand Delivered, Pick-up, etc.)
Date/time completed: 4/24/23
Airbill #: NA

Matrix(s) Received: (Check all that apply): X Soil/Solid ____Water ____Other: ____

Cooler Number/Temperature: 1 / 2.0 °C ____/____°C ____/____°C ____/____°C (Describe)

Thermometer ID: 1004

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C[1]?	✓			
Is there ice present (document if blue ice is used)	✓			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)			✓	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)			✓	
Were all samples received intact[1]?	✓			
Was adequate sample volume provided[1]?	✓			
Are short holding time analytes or samples with HTs due within 48 hours present[1]?		✓		
Is a chain-of-custody (COC) present and filled out completely[1]?	✓			
Does the COC agree with the number and type of sample bottles received[1]?	✓			
Do the sample IDs on the bottle labels match the COC[1]?	✓			
Is the COC properly relinquished by the client with date and time recorded[1]?	✓			
For volatiles in water – is there headspace (> ¼ inch bubble) present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation and was it checked [1]? *(note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)*			✓	
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)

4/25/23
Date/Time Reviewed

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.

Jordan A. Bynon, Project Manager

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

Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

WH-FS-01@6'
4/21/2023 12:50:00PM

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

Origins Laboratory, Inc.

Y304526-01 (Soil)

Boron (DTPA Sorbitol)

Boron	**0.108**		0.0993	mg/L	1	B3D2715	04/27/2023	05/02/2023	

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		25.0	mg/kg	1	B3D2425	04/24/2023	04/26/2023	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U
Surrogate: o-Terphenyl	*84.3 %*		*50-150*			"	"	"	

GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B3D2431	04/24/2023	04/25/2023	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	*131 %*		*70-130*			"	"	"	*S-GC*

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.

Jordan A. Bynon, Project Manager

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

Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

WH-FS-01@6'
4/21/2023 12:50:00PM

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

Origins Laboratory, Inc.

Y304526-01 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	*92.0 %*		*70-130*			*B3D2431*	*04/24/2023*	*04/25/2023*	
Surrogate: 4-Bromofluorobenzene	*93.7 %*		*70-130*			*"*	*"*	*"*	

Metals by Saturated Paste by EPA 6010

Calcium	**1.24**		0.499	meq/L	10	[CALC]	04/26/2023	04/28/2023	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	**1.52**		0.435	"	"	"	"	"	

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L678861	04/28/2023	04/28/2023	
2-Methylnaphthalene	ND	0.00194	0.00201	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	ND	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.

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.

Jordan A. Bynon, Project Manager

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

Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

WH-FS-01@6'
4/21/2023 12:50:00PM

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

Waypoint Analytical, LLC.

Y304526-01 (Soil)

PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L678861	04/28/2023	04/28/2023
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"
Naphthalene	ND	0.00145	0.00201	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	*43.7 %*	*33-115*			"	"	"
Surrogate: 4-Terphenyl-d14	*50 %*	*33-122*			"	"	"
Surrogate: Nitrobenzene-d5	*44.6 %*	*29-110*			"	"	"

pH in Soil by 9045D

pH	**7.99**		pH Units	1	B3D2625	04/26/2023	04/27/2023

SAR by 20B Saturated Paste

SAR	**1.69**		SAR	1	B3D2621	04/26/2023	04/28/2023

Specific Conductance Mod. 9050A

Specific Conductance (EC)	**0.467**	0.00500	mmhos/cm	1	B3D2625	04/26/2023	04/27/2023

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.

Jordan A. Bynon, Project Manager

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

Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

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 B3D2425 - EPA 3550B										
Blank (B3D2425-BLK1)					Prepared: 04/24/2023 Analyzed: 04/26/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	*23*		*"*	*24.9*		*93.1*	*50-150*			

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.

Jordan A. Bynon, Project Manager

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

Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

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 B3D2425 - EPA 3550B										
LCS (B3D2425-BS1)					Prepared: 04/24/2023 Analyzed: 04/26/2023					
Diesel (C10-C28)	949	50.0	mg/kg	1000		94.9	70-130			
Residual Range Organics (C28-C40)	982	200	"	1000		98.2	70-130			
Surrogate: o-Terphenyl	*46*		*"*	*49.8*		*93.2*	*50-150*			

Origins Laboratory, Inc.

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Jordan A. Bynon, Project Manager

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

Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

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 B3D2425 - EPA 3550B										
Matrix Spike (B3D2425-MS1)		**Source: Y304515-01**			Prepared: 04/24/2023 Analyzed: 04/26/2023					
Diesel (C10-C28)	973	50.0	mg/kg	1000	ND	97.3	70-130			
Residual Range Organics (C28-C40)	1030	200	"	1000	ND	103	70-130			
Surrogate: o-Terphenyl	*52*		*"*	*49.8*		*104*	*50-150*			

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Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

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 B3D2425 - EPA 3550B										
Matrix Spike Dup (B3D2425-MSD1)		**Source: Y304515-01**			Prepared: 04/24/2023 Analyzed: 04/26/2023					
Diesel (C10-C28)	1020	50.0	mg/kg	1000	ND	102	70-130	4.81	35	
Residual Range Organics (C28-C40)	1070	200	"	1000	ND	107	70-130	4.02	35	
Surrogate: o-Terphenyl	*53*		*"*	*49.8*		*107*	*50-150*			

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Martin C Eckert III
Project Number: [none]
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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
Batch B3D2431 - EPA 5030 (soil)										
Blank (B3D2431-BLK1)					Prepared: 04/24/2023 Analyzed: 04/24/2023					
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	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	*0.14*		"	*0.125*		*113*	*70-130*			
Surrogate: Toluene-d8	*0.12*		"	*0.125*		*96.1*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.12*		"	*0.125*		*92.5*	*70-130*			

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Eagle Environmental Consulting, LLC
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Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

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 B3D2431 - EPA 5030 (soil)										
LCS (B3D2431-BS1)					Prepared: 04/24/2023 Analyzed: 04/24/2023					
1,2,4-Trimethylbenzene	0.107	0.00200	mg/kg	0.100		107	70-130			
1,3,5-Trimethylbenzene	0.107	0.00200	"	0.100		107	70-130			
Benzene	0.0985	0.00200	"	0.100		98.5	70-130			
Ethylbenzene	0.102	0.00200	"	0.100		102	70-130			
Naphthalene	0.107	0.00380	"	0.100		107	70-130			
Toluene	0.0962	0.00200	"	0.100		96.2	70-130			
o-Xylene	0.113	0.00200	"	0.100		113	70-130			
m,p-Xylene	0.210	0.00400	"	0.200		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.13*		"	*0.125*		*107*	*70-130*			
Surrogate: Toluene-d8	*0.12*		"	*0.125*		*98.8*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.12*		"	*0.125*		*98.5*	*70-130*			

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Martin C Eckert III
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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
Batch B3D2431 - EPA 5030 (soil)										
Matrix Spike (B3D2431-MS1)		**Source: Y304509-01**			Prepared: 04/24/2023 Analyzed: 04/24/2023					
1,2,4-Trimethylbenzene	0.0940	0.00200	mg/kg	0.100	ND	94.0	70-130			
1,3,5-Trimethylbenzene	0.0888	0.00200	"	0.100	ND	88.8	70-130			
Benzene	0.0961	0.00200	"	0.100	ND	96.1	70-130			
Ethylbenzene	0.0924	0.00200	"	0.100	ND	92.4	70-130			
Naphthalene	0.111	0.00380	"	0.100	ND	111	70-130			
Toluene	0.0887	0.00200	"	0.100	ND	88.7	70-130			
o-Xylene	0.102	0.00200	"	0.100	ND	102	70-130			
m,p-Xylene	0.191	0.00400	"	0.200	ND	95.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.15*		"	*0.125*		*119*	*70-130*			
Surrogate: Toluene-d8	*0.12*		"	*0.125*		*94.4*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.13*		"	*0.125*		*101*	*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
Batch B3D2431 - EPA 5030 (soil)										
Matrix Spike Dup (B3D2431-MSD1)		**Source: Y304509-01**			Prepared: 04/24/2023 Analyzed: 04/24/2023					
1,2,4-Trimethylbenzene	0.0960	0.00200	mg/kg	0.100	ND	96.0	70-130	2.11	20	
1,3,5-Trimethylbenzene	0.0918	0.00200	"	0.100	ND	91.8	70-130	3.32	20	
Benzene	0.0947	0.00200	"	0.100	ND	94.7	70-130	1.53	20	
Ethylbenzene	0.0939	0.00200	"	0.100	ND	93.9	70-130	1.59	20	
Naphthalene	0.101	0.00380	"	0.100	ND	101	70-130	9.94	20	
Toluene	0.0899	0.00200	"	0.100	ND	89.9	70-130	1.37	20	
o-Xylene	0.101	0.00200	"	0.100	ND	101	70-130	0.276	20	
m,p-Xylene	0.194	0.00400	"	0.200	ND	96.8	70-130	1.55	20	
Surrogate: 1,2-Dichloroethane-d4	*0.13*		"	*0.125*		*106*	*70-130*			
Surrogate: Toluene-d8	*0.12*		"	*0.125*		*95.7*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.12*		"	*0.125*		*98.7*	*70-130*			

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Martin C Eckert III
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Project: Noble - HSR - Tudor #11-31A

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

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3D2621 - Saturated Paste Metals										
Blank (B3D2621-BLK1)					Prepared: 04/26/2023 Analyzed: 04/28/2023					
SAR	0.00		SAR							
Calcium PPM	ND	10.0	mg/L							
Magnesium PPM	ND	10.0	"							
Sodium PPM	ND	10.0	"							
Duplicate (B3D2621-DUP1)		**Source: Y304487-08**			Prepared: 04/26/2023 Analyzed: 04/28/2023					
Calcium PPM	49.4	10.0	mg/L		49.8			0.740	50	
SAR	0.00		SAR		0.803			200	200	
Magnesium PPM	44.7	10.0	mg/L		44.5			0.448	50	
Sodium PPM	34.1	10.0	"		32.4			5.26	50	
Batch B3D2715 - DTPA Sorbitol Preparation										
Blank (B3D2715-BLK1)					Prepared: 04/27/2023 Analyzed: 05/02/2023					
Boron	ND	0.100	mg/L							
Duplicate (B3D2715-DUP1)		**Source: Y304515-01**			Prepared: 04/27/2023 Analyzed: 05/02/2023					
Boron	1.67	0.101	mg/L		1.63			2.57	50	

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Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

Saturated Paste - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3D2625 - Saturated Paste pH/EC										
Blank (B3D2625-BLK1)					Prepared: 04/26/2023 Analyzed: 04/27/2023					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
Duplicate (B3D2625-DUP1)		**Source: Y304487-08**			Prepared: 04/26/2023 Analyzed: 04/27/2023					
pH	8.03		pH Units		8.09			0.744	25	
Specific Conductance (EC)	0.752	0.00500	mmhos/cm		0.758			0.808	25	

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Martin C Eckert III
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Project: Noble - HSR - Tudor #11-31A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch L678861 - 3550B										
MSD (L 83335-MSD-L678861)		**Source: 83335**			Prepared: 04/28/2023 Analyzed: 04/28/2023					
2-Methylnaphthalene	0.0904	0.00201	mg/Kg	0.163	<0.00194	55.4	30-130	12	30	
Fluorene	0.0923	0.00067	"	0.163	<0.000286	56.6	30-130	6.7	30	
Pyrene	0.101	0.00067	"	0.163	<0.000643	61.9	30-130	2.3	30	
Indeno(1,2,3-cd)pyrene	0.0788	0.00067	"	0.163	<0.000627	48.3	30-130	1	30	
Fluoranthene	0.101	0.00067	"	0.163	<0.000394	61.9	30-130	0	30	
Dibenz(a,h)anthracene	0.0913	0.00067	"	0.163	<0.000614	56	30-130	0.4	30	
Chrysene	0.105	0.00067	"	0.163	<0.000624	64.4	30-130	0.9	30	
Naphthalene	0.0812	0.00201	"	0.163	<0.00145	49.8	30-130	13.3	30	
1-Methylnaphthalene	0.0804	0.00201	"	0.163	<0.00109	49.3	30-130	11.9	30	
Benzo(k)fluoranthene	0.0951	0.00067	"	0.163	<0.000437	58.3	30-130	8.8	30	
Acenaphthene	0.0897	0.00067	"	0.163	<0.000304	55	30-130	9.5	30	
Anthracene	0.0986	0.00067	"	0.163	<0.000334	60.4	30-130	1.4	30	
Benzo(a)anthracene	0.108	0.00067	"	0.163	<0.000493	66.2	30-130	2.8	30	
Benzo(a)pyrene	0.108	0.00067	"	0.163	<0.000468	66.2	30-130	0	30	
Benzo(b)fluoranthene	0.0841	0.00067	"	0.163	<0.000585	51.5	30-130	5.5	30	
Surrogate: 2-Fluorobiphenyl	*49.5*		"	*0.327*	*146*	*49.5*	*33-115*			
Surrogate: Nitrobenzene-d5	*50.1*		"	*0.327*	*140*	*50.1*	*29-110*			
Surrogate: 4-Terphenyl-d14	*58.7*		"	*0.327*	*166*	*58.7*	*33-122*			
MS (L 83335-MS-L678861)		**Source: 83335**			Prepared: 04/28/2023 Analyzed: 04/28/2023					
Benzo(k)fluoranthene	0.087	0.00067	mg/Kg	0.167	<0.000437	52	30-130			
Acenaphthene	0.0987	0.00067	"	0.167	<0.000304	59.1	30-130			
Naphthalene	0.0928	0.00201	"	0.167	<0.00145	55.5	30-130			
Indeno(1,2,3-cd)pyrene	0.078	0.00067	"	0.167	<0.000627	46.7	30-130			
Fluorene	0.0987	0.00067	"	0.167	<0.000286	59.1	30-130			
Fluoranthene	0.101	0.00067	"	0.167	<0.000394	60.4	30-130			
Dibenz(a,h)anthracene	0.0909	0.00067	"	0.167	<0.000614	54.4	30-130			

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Wheat Ridge CO 80033

Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch L678861 - 3550B										
MS (L 83335-MS-L678861)		**Source: 83335**			Prepared: 04/28/2023 Analyzed: 04/28/2023					
Chrysene	0.106	0.00067	mg/Kg	0.167	<0.000624	63.4	30-130			
1-Methylnaphthalene	0.0906	0.00201	"	0.167	<0.00109	54.2	30-130			
Benzo(a)pyrene	0.108	0.00067	"	0.167	<0.000468	64.6	30-130			
Anthracene	0.1	0.00067	"	0.167	<0.000334	59.8	30-130			
Pyrene	0.0987	0.00067	"	0.167	<0.000643	59.1	30-130			
2-Methylnaphthalene	0.102	0.00201	"	0.167	<0.00194	61	30-130			
Benzo(b)fluoranthene	0.0889	0.00067	"	0.167	<0.000585	53.2	30-130			
Benzo(a)anthracene	0.105	0.00067	"	0.167	<0.000493	62.8	30-130			
Surrogate: Nitrobenzene-d5	*54.9*		"	*0.333*	*140*	*54.9*	*29-110*			
Surrogate: 4-Terphenyl-d14	*57.3*		"	*0.333*	*166*	*57.3*	*33-122*			
Surrogate: 2-Fluorobiphenyl	*56.1*		"	*0.333*	*146*	*56.1*	*33-115*			
LCS (LCS-L678861)					Prepared: 04/28/2023 Analyzed: 04/28/2023					
Chrysene	0.109	0.00067	mg/Kg	0.167		65.2	30-130			
Dibenz(a,h)anthracene	0.0824	0.00067	"	0.167		49.3	30-130			
Fluoranthene	0.105	0.00067	"	0.167		62.8	30-130			
Fluorene	0.0937	0.00067	"	0.167		56.1	30-130			
Indeno(1,2,3-cd)pyrene	0.067	0.00067	"	0.167		40.1	30-130			
Naphthalene	0.087	0.00201	"	0.167		52	30-130			
Benzo(k)fluoranthene	0.0906	0.00067	"	0.167		54.2	30-130			
Pyrene	0.105	0.00067	"	0.167		62.8	30-130			
Benzo(a)pyrene	0.108	0.00067	"	0.167		64.6	30-130			
Benzo(a)anthracene	0.111	0.00067	"	0.167		66.4	30-130			
Anthracene	0.102	0.00067	"	0.167		61	30-130			
Acenaphthene	0.0937	0.00067	"	0.167		56.1	30-130			
2-Methylnaphthalene	0.0938	0.00201	"	0.167		56.1	30-130			
1-Methylnaphthalene	0.0812	0.00201	"	0.167		48.6	30-130			

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Martin C Eckert III
Project Number: [none]
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PAH by 8270D SIM - Quality Control
Waypoint Analytical, LLC.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch L678861 - 3550B										
LCS (LCS-L678861)					Prepared: 04/28/2023 Analyzed: 04/28/2023					
Benzo(b)fluoranthene	0.0948	0.00067	mg/Kg	0.167		56.7	30-130			
Surrogate: Nitrobenzene-d5	*56.7*		"	*0.333*		*56.7*	*29-110*			
Surrogate: 4-Terphenyl-d14	*65.1*		"	*0.333*		*65.1*	*33-122*			
Surrogate: 2-Fluorobiphenyl	*54*		"	*0.333*		*54*	*33-115*			
LRB (LRB-L678861)					Prepared: 04/28/2023 Analyzed: 04/28/2023					
Chrysene	ND	0.00067	mg/Kg				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Naphthalene	ND	0.00201	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00201	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	*58.5*		"	*0.333*		*58.5*	*29-110*			
Surrogate: 4-Terphenyl-d14	*69.6*		"	*0.333*		*69.6*	*33-122*			
Surrogate: 2-Fluorobiphenyl	*56.1*		"	*0.333*		*56.1*	*33-115*			

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Martin C Eckert III
Project Number: [none]
Project: Noble - HSR - Tudor #11-31A

Notes and Definitions

U	Sample is Non-Detect.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

All soil results are reported on a wet weight basis.
Calculated results may use J-flag data (instead of reported "ND") as part of calculation to provide a more accurate result.

Origins Laboratory, Inc.

Jordan A. Bynon, Project Manager

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