

Wellhead Closure Checklist						
COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form						
Additional attachments (optional):		Pit Closure		Tank Battery Closure		Flowline Closure
Site Name & COGCC Facility Number: Hoff PC #D06-28D		Date: 03/21/23				Remediation Project #: 26911
Associated Wells: 05-123-32161		Age of Site: Years				Number of Photos Attached: 1
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple)					40.260994 / -104.598281	
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)						
Good Condition						
USCS Soil Type: Silty SAND				Estimated Depth to Groundwater: Approx. 10-12'		
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	05-123-32161					
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	2.1	1.6	1.8	1.4	2.3	
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?						
<input checked="" type="checkbox"/> 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: 2.3				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?						
<input checked="" type="checkbox"/> 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:						

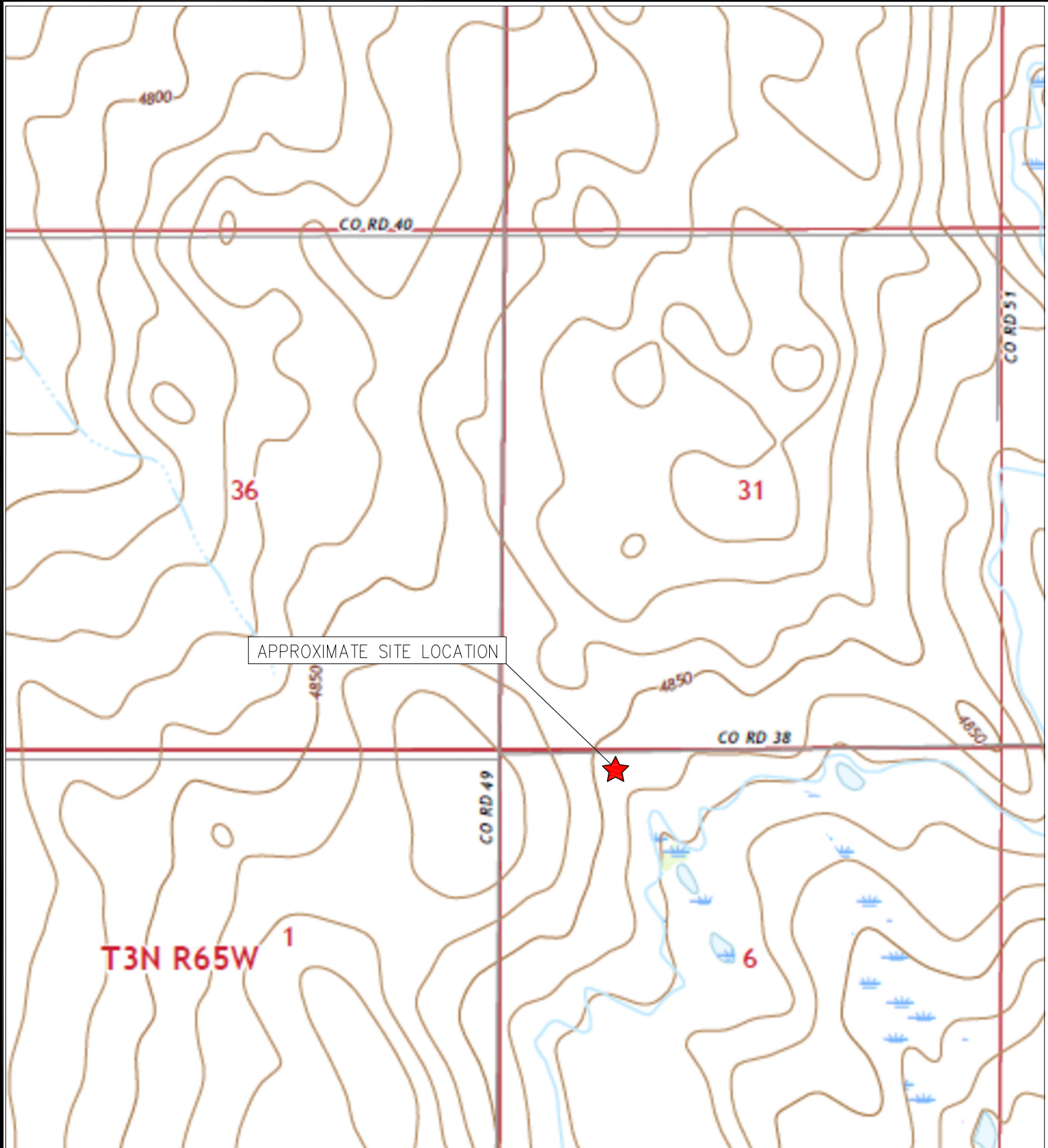


## **FIGURES**

**Figure 1: Topographic Site Location Map**

**Figure 2: Aerial Site Location Map**

**Figure 3: Soil Analytical Map**



TOPOGRAPHIC SITE LOCATION MAP  
 HOFF PC #D06-28D  
 CLOSURE ASSESSMENT  
 40.260994 / -104.598281  
 NW¼ NW¼ SEC.6 T3N R64W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-32161  
 REMEDIATION # 26911



**EAGLE**  
 ENVIRONMENTAL  
 CONSULTING, LLC

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

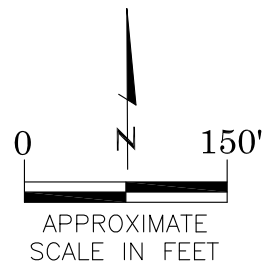
SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP,  
 VALLEY VIEW SCHOOL, CO QUADRANGLE 2022

FIGURE NO. 1



# LEGEND

- FORMER HOFF PC #D06-28D WELLHEAD (PLUGGED AND ABANDONED)
- ASSOCIATED SEPARATOR
- APPROXIMATE FLOWLINE LOCATION



AERIAL SITE LOCATION MAP  
 HOFF PC #D06-28D  
 CLOSURE ASSESSMENT  
 40.260994 / -104.598281  
 NW¼ NW¼ SEC.6 T3N R64W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-32161  
 REMEDIATION # 26911

FIGURE NO.  
2

DRAWN BY:  
CT



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#### 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 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)  
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 COGCC TABLE 915-1 REGULATORY LIMITS.

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION

SOIL ANALYTICAL MAP  
HOFF PC #D06-28D  
CLOSURE ASSESSMENT  
40.260994 / -104.598281  
NW¼ NW¼ SEC.6 T3N R64W 6PM  
WELD COUNTY, COLORADO  
API # 05-123-32161  
REMEDATION # 26911

FIGURE NO.  
3

DRAWN BY:  
CT



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## **TABLES**

**Table 1: Photoionization Detector Reading Summary**

**Table 2: Soil Analytical Results Summary**

**TABLE 1**  
**PHOTOIONIZATION DETECTOR READING SUMMARY**  
**HOFF PC #D06-28D**  
**CLOSURE ASSESSMENT**  
**40.260994 / -104.598281**  
**NW¼ NW¼ SEC.6 T3N R64W 6PM**  
**WELD COUNTY, COLORADO**  
**API # 05-123-32161**  
**REMEDIATION # 26911**

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WH-SS-01 @ 5' (40.261008 / -104.598292)	03/21/23	5	2.1	N
WH-SS-02 @ 5' (40.260994 / -104.598268)	03/21/23	5	1.6	N
WH-SS-03 @ 5' (40.260981 / -104.598290)	03/21/23	5	1.8	N
WH-SS-04 @ 5' (40.260993 / -104.598312)	03/21/23	5	1.4	N
WH-FS-01 @ 6' (40.260996 / -104.598287)	03/21/23	6	2.3	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector				

TABLE 2  
SOIL ANALYTICAL RESULTS SUMMARY  
HOFF PC #D06-28D  
CLOSURE ASSESSMENT  
40.260994 / -104.598281  
NW¼ NW¼ SEC.6 T3N R64W 6PM  
WELD COUNTY, COLORADO  
API # 05-123-32161  
REMEDATION # 26911

Sample Location				WH-FS-01 @ 6'
(Latitude / Longitude)				(40.260996 / -104.598287)
Sample Date				3/21/2023
Sample Depth				6'
PID Reading (ppm-v)				2.3
Regulatory Limits				
Chemical of Concern	Units	COGCC Table 915-1 RSSLs	COGCC Table 915-1 GSSLs	
<b>VOCs</b>				
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
<b>TOTAL PETROLEUM HYDROCARBONS</b>				
TPH-GRO	mg/kg	500	--	<0.200
TPH-DRO	mg/kg	500	--	<25.0
TPH-RRO	mg/kg	500	--	<100
<b>POLYCYCLIC AROMATIC HYDROCARBONS</b>				
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	0.00089
Benzo(b)-fluoranthene	mg/kg	1.1	0.3	0.000737
Benzo(k)-fluoranthene	mg/kg	11	2.9	0.000646
Chrysene	mg/kg	110	9	0.000828
Dibenzo(a,h)-anthracene	mg/kg	0.11	0.096	<0.00067
Fluoranthene	mg/kg	240	8.9	0.00116
Fluorene	mg/kg	240	0.54	<0.00067
Indeno(1,2,3-cd)-pyrene	mg/kg	1.1	0.98	0.000697
Naphthalene	mg/kg	2	0.0038	<0.00201
Pyrene	mg/kg	180	1.3	0.000914
<b>SOIL SUITABILITY (Inorganics)</b>				
Boron	mg/L	2	--	0.292
pH	standard unit	6-8.3	--	7.94
Sodium Adsorption Ratio (SAR)	--	<6	--	2.15
Specific Conductance (EC)	mmhos/cm	<4	--	0.748
COGCC = Colorado Oil and Gas Conservation Commission mg/kg = milligrams per kilogram mmhos/cm = millimhos per centimeter PID = Photoionization Detector ppm-v = parts per million by volume mg/L = milligrams per liter SAR = Sodium Adsorption Ratio Notes: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit and/or minimum detection limit. Values presented in <b>BOLD</b> exceed ECMC Table 915-1 Regulatory Limits.				
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				





## **ATTACHMENT A**

### **Photo Log**

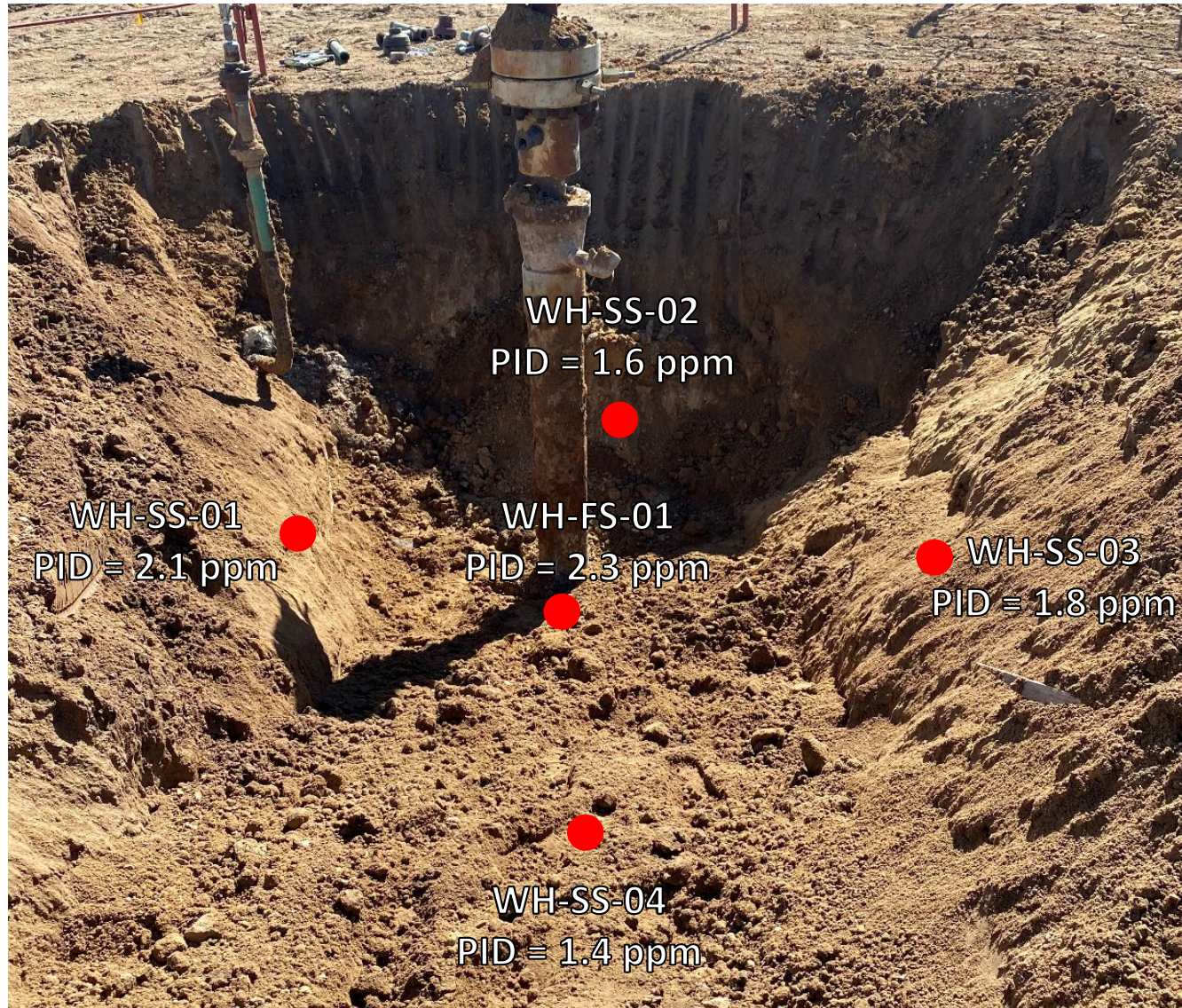
Hoff PC #D06-28D  
API # 05-123-32161  
Remediation # 26911

Closure Assessment

March 2023



## Wellhead Excavation – 03/21/23



Looking east

No petroleum hydrocarbon staining or odor observed



## **ATTACHMENT B**

### **Laboratory Analytical Report**





March 30, 2023

Eagle Environmental Consulting, LLC

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - Hoff PC #D06-28D

Project Number - [none]

Attached are your analytical results for Noble - Hoff PC #D06-28D received by Origins Laboratory, Inc. March 21, 2023. This project is associated with Origins project number Y303537-01.

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, LLC  
8000 W 44th Ave  
Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@6'	Y303537-01	Soil	March 21, 2023 11:08	03/21/2023 15:35

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, LLC  
8000 W 44th Ave  
Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: 303537

Client: Eagle  
Client Project ID: Hoff PC #D06-28D

Checklist Completed by: DE

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

Date/time completed: 03/21/2023

Airbill #: 418

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

Cooler Number/Temperature: 1 / 1.2 °C \_\_\_\_\_ / \_\_\_\_\_ °C \_\_\_\_\_ / \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: TD04

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

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

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 3/22/23

Origins Laboratory, Inc.

[Signature]

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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

WH-FS-01@6'

3/21/2023 11:08:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y303537-01 (Soil)

## Boron (DTPA Sorbitol)

Boron	0.292	0.0987	mg/L	1	B3C2410	03/24/2023	03/27/2023	
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## DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3C2332	03/23/2023	03/27/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	69.1 %	50-150	"	"	"	"	"	
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## GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3C2326	03/23/2023	03/24/2023	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	93.3 %	70-130	"	"	"	"	"	
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Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

WH-FS-01@6'

3/21/2023 11:08:00AM

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

Origins Laboratory, Inc.  
Y303537-01 (Soil)

## GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	100 %		70-130			B3C23 26	03/23/2023	03/24/2023	
Surrogate: 4-Bromofluorobenzene	98.0 %		70-130			"	"	"	

## Metals by Saturated Paste by EPA 6010

Calcium	2.17		0.499	meq/L	10	[CALC]	03/27/2023	03/29/2023	
Magnesium	1.70		0.823	"	"	"	"	"	
Sodium	2.99		0.435	"	"	"	"	"	

## PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L672007	03/24/2023	03/24/2023	
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	0.00089	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	0.000737	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	0.000646	0.000437	0.00067	"	"	"	"	"	J
Chrysene	0.000828	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	0.00116	0.000394	0.00067	"	"	"	"	"	
Fluorene	ND	0.000286	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

WH-FS-01@6'

3/21/2023 11:08:00AM

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

Waypoint Analytical, LLC.  
Y303537-01 (Soil)

## PAH by 8270D SIM

Indeno(1,2,3-cd)pyrene	0.000697	0.000627	0.00067	mg/Kg	1	L672007	03/24/2023	03/24/2023	
Naphthalene	ND	0.00145	0.00201	"	"	"	"	"	
Pyrene	0.000914	0.000643	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	63.3 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	62.7 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	59.7 %		29-110			"	"	"	

## pH in Soil by 9045D

pH	7.94			pH Units	1	B3C2705	03/27/2023	03/28/2023	
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## SAR by 20B Saturated Paste

SAR	2.15			SAR	1	B3C2701	03/27/2023	03/29/2023	
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## Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.748		0.00500	mmhos/cm	1	B3C2705	03/27/2023	03/28/2023	
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Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

## 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 B3C2326 - EPA 5030 (soil)										
Blank (B3C2326-BLK1)					Prepared: 03/23/2023 Analyzed: 03/24/2023					
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	0.11		"	0.125	89.8		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	103		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	95.2		70-130			

Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

**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 B3C2326 - EPA 5030 (soil)**

**LCS (B3C2326-BS1)**

Prepared: 03/23/2023 Analyzed: 03/24/2023

1,2,4-Trimethylbenzene	0.114	0.00200	mg/kg	0.100		114	70-130			
1,3,5-Trimethylbenzene	0.118	0.00200	"	0.100		118	70-130			
Benzene	0.101	0.00200	"	0.100		101	70-130			
Ethylbenzene	0.116	0.00200	"	0.100		116	70-130			
Naphthalene	0.0897	0.00380	"	0.100		89.7	70-130			
Toluene	0.102	0.00200	"	0.100		102	70-130			
o-Xylene	0.110	0.00200	"	0.100		110	70-130			
m,p-Xylene	0.232	0.00400	"	0.200		116	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		90.0	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		106	70-130			

Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B3C2326 - EPA 5030 (soil)</b>										
<b>Matrix Spike (B3C2326-MS1)</b>		<b>Source: Y303533-01</b>			Prepared: 03/23/2023 Analyzed: 03/24/2023					
1,2,4-Trimethylbenzene	0.111	0.00200	mg/kg	0.100	ND	111	70-130			
1,3,5-Trimethylbenzene	0.115	0.00200	"	0.100	ND	115	70-130			
Benzene	0.0931	0.00200	"	0.100	ND	93.1	70-130			
Ethylbenzene	0.109	0.00200	"	0.100	ND	109	70-130			
Naphthalene	0.0780	0.00380	"	0.100	0.000820	77.2	70-130			
Toluene	0.0983	0.00200	"	0.100	ND	98.3	70-130			
o-Xylene	0.105	0.00200	"	0.100	ND	105	70-130			
m,p-Xylene	0.218	0.00400	"	0.200	ND	109	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		85.9	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		103	70-130			

Origins Laboratory, Inc.



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Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

## 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 B3C2326 - EPA 5030 (soil)										
Matrix Spike Dup (B3C2326-MSD1)			Source: Y303533-01		Prepared: 03/23/2023 Analyzed: 03/24/2023					
1,2,4-Trimethylbenzene	0.114	0.00200	mg/kg	0.100	ND	114	70-130	2.70	20	
1,3,5-Trimethylbenzene	0.118	0.00200	"	0.100	ND	118	70-130	2.37	20	
Benzene	0.0946	0.00200	"	0.100	ND	94.6	70-130	1.58	20	
Ethylbenzene	0.111	0.00200	"	0.100	ND	111	70-130	2.37	20	
Naphthalene	0.0872	0.00380	"	0.100	0.000820	86.4	70-130	11.1	20	
Toluene	0.0998	0.00200	"	0.100	ND	99.8	70-130	1.45	20	
o-Xylene	0.109	0.00200	"	0.100	ND	109	70-130	3.50	20	
m,p-Xylene	0.224	0.00400	"	0.200	ND	112	70-130	2.90	20	
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		88.9	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

Origins Laboratory, Inc.



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Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

## 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 B3C2332 - EPA 3580										
Blank (B3C2332-BLK1)					Prepared: 03/23/2023 Analyzed: 03/27/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	23		"	24.9		91.9	50-150			

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Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

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 B3C2332 - EPA 3580

LCS (B3C2332-BS1)

Prepared: 03/23/2023 Analyzed: 03/27/2023

Diesel (C10-C28)	878	50.0	mg/kg	1000		87.8	70-130			
Residual Range Organics (C28-C40)	865	200	"	1000		86.5	70-130			
Surrogate: o-Terphenyl	45		"	49.8		90.6	50-150			

Origins Laboratory, Inc.



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8000 W 44th Ave  
Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

## 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 B3C2332 - EPA 3580

Matrix Spike (B3C2332-MS1)		Source: Y303527-04			Prepared: 03/23/2023 Analyzed: 03/27/2023					
Diesel (C10-C28)	977	50.0	mg/kg	1000	48.0	92.9	70-130			
Residual Range Organics (C28-C40)	892	200	"	1000	ND	89.2	70-130			
Surrogate: o-Terphenyl	37		"	49.8		74.2	50-150			

Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

## 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 B3C2332 - EPA 3580										
<b>Matrix Spike Dup (B3C2332-MSD1)</b>			<b>Source: Y303527-04</b>			Prepared: 03/23/2023 Analyzed: 03/27/2023				
Diesel (C10-C28)	984	50.0	mg/kg	1000	48.0	93.6	70-130	0.689	35	
Residual Range Organics (C28-C40)	895	200	"	1000	ND	89.5	70-130	0.336	35	
Surrogate: o-Terphenyl	49		"	49.8		97.6	50-150			

Origins Laboratory, Inc.



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Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

## 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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## Classical Chemistry Parameters - 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 B3C2410 - DTPA Sorbitol Preparation

##### Blank (B3C2410-BLK1)

Prepared: 03/24/2023 Analyzed: 03/27/2023

Boron ND 0.100 mg/L

##### Duplicate (B3C2410-DUP1)

Source: Y303517-01

Prepared: 03/24/2023 Analyzed: 03/27/2023

Boron 0.502 0.0993 mg/L 0.436 14.2 50

#### Batch B3C2701 - Saturated Paste Metals

##### Blank (B3C2701-BLK1)

Prepared: 03/27/2023 Analyzed: 03/29/2023

Calcium PPM ND 10.0 mg/L

SAR 0.00 SAR

Magnesium PPM ND 10.0 mg/L

Sodium PPM ND 10.0 "

##### Duplicate (B3C2701-DUP1)

Source: Y303544-08

Prepared: 03/27/2023 Analyzed: 03/29/2023

Calcium PPM 50.9 10.0 mg/L 33.0 42.7 50

SAR 0.00 SAR 5.16 200 200

Magnesium PPM 40.8 10.0 mg/L 27.6 38.4 50

Sodium PPM 188 10.0 " 166 12.5 50

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Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B3C2705 - Saturated Paste pH/EC</b>										
<b>Blank (B3C2705-BLK1)</b>					Prepared: 03/27/2023 Analyzed: 03/28/2023					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
<b>Duplicate (B3C2705-DUP1)</b>					<b>Source: Y303544-08</b> Prepared: 03/27/2023 Analyzed: 03/28/2023					
pH	8.09		pH Units		8.26			2.08	25	
Specific Conductance (EC)	1.35	0.00500	mmhos/cm		1.14			16.8	25	

Origins Laboratory, Inc.



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Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

**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
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**Batch L672007 - 3550B**

MSD (L 86715-MSD-L672007)		Source: 86715			Prepared: 03/24/2023 Analyzed: 03/24/2023					
2-Methylnaphthalene	0.0806	0.00201	mg/Kg	0.167	<0.00194	48.2	30-130	42.4	30	*
Fluorene	0.0919	0.00067	"	0.167	<0.000286	55	30-130	42.1	30	*
Pyrene	0.0954	0.00067	"	0.167	<0.000643	57.1	30-130	45.7	30	*
Indeno(1,2,3-cd)pyrene	0.0515	0.00067	"	0.167	<0.000627	30.8	30-130	81.2	30	*
Fluoranthene	0.0937	0.00067	"	0.167	<0.000394	56.1	30-130	46.8	30	*
Dibenz(a,h)anthracene	0.0786	0.00067	"	0.167	<0.000614	47	30-130	67.6	30	*
Chrysene	0.0993	0.00067	"	0.167	<0.000624	59.4	30-130	45.6	30	*
Naphthalene	0.0817	0.00201	"	0.167	<0.00145	48.9	30-130	43.4	30	*
1-Methylnaphthalene	0.0855	0.00201	"	0.167	<0.00109	51.1	30-130	40.5	30	*
Benzo(k)fluoranthene	0.0793	0.00067	"	0.167	<0.000437	47.4	30-130	46.9	30	*
Acenaphthene	0.0872	0.00067	"	0.167	<0.000304	52.2	30-130	40.1	30	*
Anthracene	0.0952	0.00067	"	0.167	<0.000334	57	30-130	47.8	30	*
Benzo(a)anthracene	0.089	0.00067	"	0.167	<0.000493	53.2	30-130	44.5	30	*
Benzo(a)pyrene	0.0992	0.00067	"	0.167	<0.000468	59.4	30-130	43.2	30	*
Benzo(b)fluoranthene	0.0719	0.00067	"	0.167	<0.000585	43	30-130	57.5	30	*
Surrogate: 2-Fluorobiphenyl	41.4		"	0.333	161	41.4	33-115			
Surrogate: Nitrobenzene-d5	41.4		"	0.333	159	41.4	29-110			
Surrogate: 4-Terphenyl-d14	51.6		"	0.333	207	51.6	33-122			

MS (L 86715-MS-L672007)		Source: 86715			Prepared: 03/24/2023 Analyzed: 03/24/2023					
Benzo(k)fluoranthene	0.128	0.00067	mg/Kg	0.167	<0.000437	76.6	30-130			
Acenaphthene	0.131	0.00067	"	0.167	<0.000304	78.4	30-130			
Naphthalene	0.127	0.00201	"	0.167	<0.00145	76	30-130			
Indeno(1,2,3-cd)pyrene	0.122	0.00067	"	0.167	<0.000627	73	30-130			
Fluorene	0.141	0.00067	"	0.167	<0.000286	84.4	30-130			
Fluoranthene	0.151	0.00067	"	0.167	<0.000394	90.4	30-130			
Dibenz(a,h)anthracene	0.159	0.00067	"	0.167	<0.000614	95.2	30-130			

Origins Laboratory, Inc.



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Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

**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
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**Batch L672007 - 3550B**

MS (L 86715-MS-L672007)		Source: 86715			Prepared: 03/24/2023 Analyzed: 03/24/2023					
Chrysene	0.158	0.00067	mg/Kg	0.167	<0.000624	94.6	30-130			
1-Methylnaphthalene	0.129	0.00201	"	0.167	<0.00109	77.2	30-130			
Benzo(a)pyrene	0.154	0.00067	"	0.167	<0.000468	92.2	30-130			
Anthracene	0.155	0.00067	"	0.167	<0.000334	92.8	30-130			
Pyrene	0.152	0.00067	"	0.167	<0.000643	91	30-130			
2-Methylnaphthalene	0.124	0.00201	"	0.167	<0.00194	74.2	30-130			
Benzo(b)fluoranthene	0.13	0.00067	"	0.167	<0.000585	77.8	30-130			
Benzo(a)anthracene	0.14	0.00067	"	0.167	<0.000493	83.8	30-130			
Surrogate: Nitrobenzene-d5	63		"	0.333	159	63	29-110			
Surrogate: 4-Terphenyl-d14	76.2		"	0.333	207	76.2	33-122			
Surrogate: 2-Fluorobiphenyl	62.1		"	0.333	161	62.1	33-115			

LCS (LCS-L672007)		Prepared: 03/24/2023 Analyzed: 03/24/2023								
Chrysene	0.135	0.00067	mg/Kg	0.167		80.8	30-130			
Dibenz(a,h)anthracene	0.106	0.00067	"	0.167		63.4	30-130			
Fluoranthene	0.128	0.00067	"	0.167		76.6	30-130			
Fluorene	0.121	0.00067	"	0.167		72.4	30-130			
Indeno(1,2,3-cd)pyrene	0.0624	0.00067	"	0.167		37.3	30-130			
Naphthalene	0.111	0.00201	"	0.167		66.4	30-130			
Benzo(k)fluoranthene	0.109	0.00067	"	0.167		65.2	30-130			
Pyrene	0.128	0.00067	"	0.167		76.6	30-130			
Benzo(a)pyrene	0.138	0.00067	"	0.167		82.6	30-130			
Benzo(a)anthracene	0.119	0.00067	"	0.167		71.2	30-130			
Anthracene	0.132	0.00067	"	0.167		79	30-130			
Acenaphthene	0.114	0.00067	"	0.167		68.2	30-130			
2-Methylnaphthalene	0.11	0.00201	"	0.167		65.8	30-130			
1-Methylnaphthalene	0.116	0.00201	"	0.167		69.4	30-130			

Origins Laboratory, Inc.



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Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

## 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
<b>Batch L672007 - 3550B</b>										
<b>LCS (LCS-L672007)</b>					Prepared: 03/24/2023 Analyzed: 03/24/2023					
Benzo(b)fluoranthene	0.105	0.00067	mg/Kg	0.167		62.8	30-130			
Surrogate: Nitrobenzene-d5	63		"	0.333		63	29-110			
Surrogate: 4-Terphenyl-d14	80.1		"	0.333		80.1	33-122			
Surrogate: 2-Fluorobiphenyl	64.5		"	0.333		64.5	33-115			
<b>LRB (LRB-L672007)</b>					Prepared: 03/24/2023 Analyzed: 03/24/2023					
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	52.2		"	0.333		52.2	29-110			
Surrogate: 4-Terphenyl-d14	77.4		"	0.333		77.4	33-122			
Surrogate: 2-Fluorobiphenyl	57.3		"	0.333		57.3	33-115			

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8000 W 44th Ave  
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Martin C Eckert III  
Project Number: [none]  
Project: Noble - Hoff PC #D06-28D

### 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.

Calculated results may use J-flag data (instead of reported "ND") as part of calculation to provide a more accurate result.

Origins Laboratory, Inc.



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