

## Wellhead Closure Checklist

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

Additional attachments (optional):		Pit Closure		Tank Battery Closure		Flowline Closure 4-15-19	Partially Buried Vault Closure
Site Name & COGCC Facility Number: State # 8-36		Date: 11-14-22				Remediation Project #: 21936	
Associated Wells: 05-123-11981		Age of Site: years				Number of Photos Attached: 1	
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) 40.448100 / -104.848090						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: ~10-15'

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	05-123-11981					
Age	years					
Condition of surface around wellhead	Good - Per Crew					
PID Readings	N/A - Excavated upon arrival					
Condition of subsurface	Good - no staining / no odor					
PID Readings	0.9	0.5	0.4	0.6	1.7	
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: 1.7 Total number of samples submitted to lab for analysis: 1

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

Vertical extent: N/A Estimated spill volume:

Lateral extent: N/A Volume of soil removed:

Is additional investigation required?

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

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

Date Groundwater was encountered: Commencement date of removal:

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

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

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

Total number of samples submitted to lab for analysis:



## **FIGURES**

**Figure 1: Topographic Site Location Map**

**Figure 2: Aerial Site Location Map**

**Figure 3: Soil Analytical Map**



APPROXIMATE SITE LOCATION



TOPOGRAPHIC SITE LOCATION MAP  
 STATE #8-36  
 CLOSURE ASSESSMENT  
 40.448100 / -104.848090  
 NW¼ NW¼ SEC.36 T6N R67W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-11981  
 REMEDIATION # 21936



**EAGLE**  
 ENVIRONMENTAL  
 CONSULTING, LLC

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

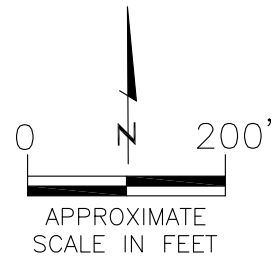
SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP,  
 BRACEWELL, CO QUADRANGLE 2022

FIGURE NO. 1



LEGEND

 FORMER STATE #8-36 WELLHEAD (PLUGGED AND ABANDONED)



AERIAL SITE LOCATION MAP  
STATE #8-36  
CLOSURE ASSESSMENT  
40.448100 / -104.848090  
NW¼ NW¼ SEC.36 T6N R67W 6PM  
WELD COUNTY, COLORADO  
API # 05-123-11981  
REMEDATION # 21936

DRAWN BY:

JF

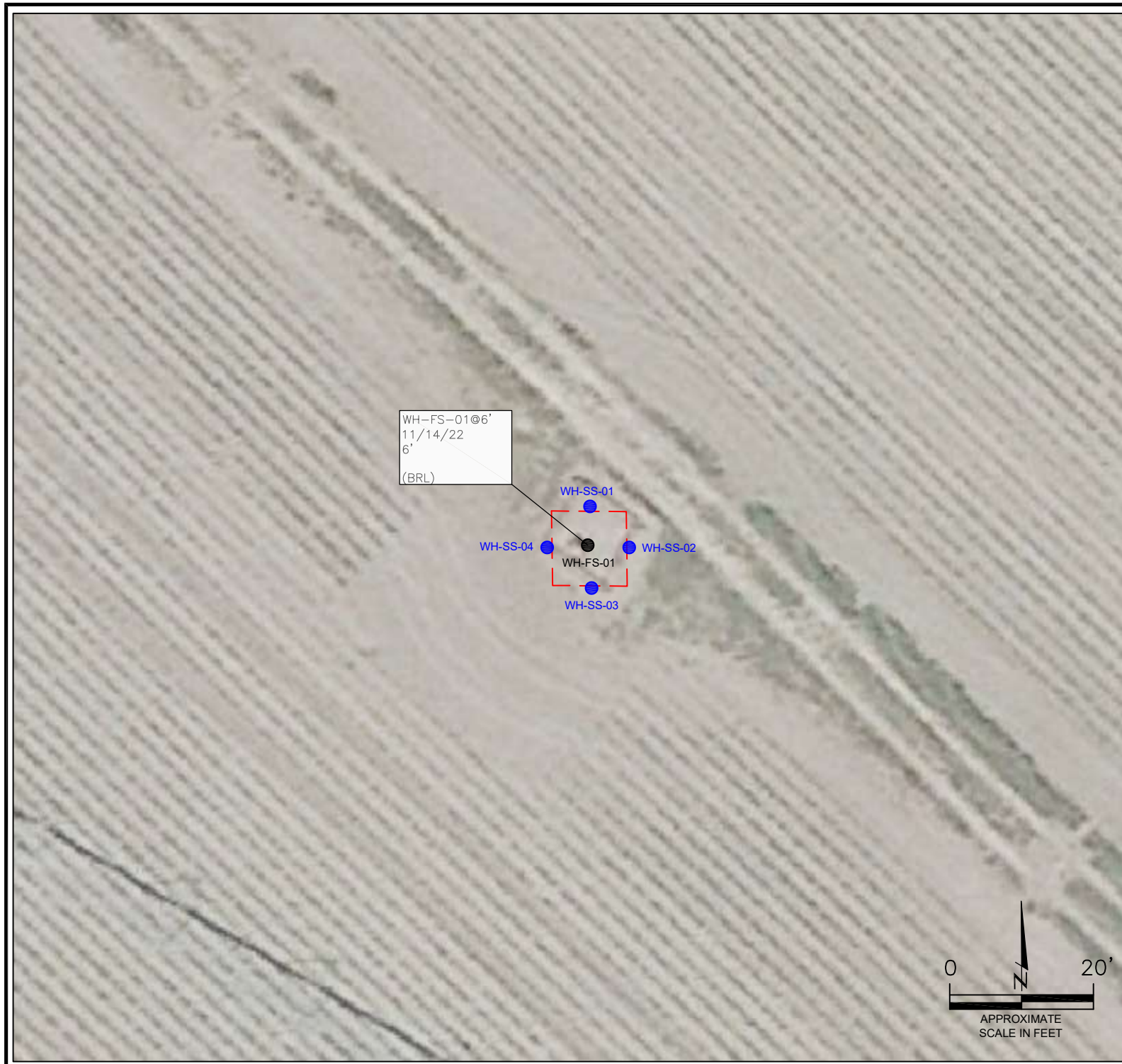
FIG. NO.

2



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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

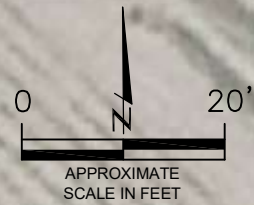
TPH-GRO = TOTAL PETROLEUM HYDROCARBONS - GASOLINE RANGE ORGANICS  
 TPH-DRO = TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS  
 TPH-RRO = TOTAL PETROLEUM HYDROCARBONS - RESIDUAL RANGE ORGANICS

NOTES:  
 VALUES PRESENTED 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.

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION

SOIL ANALYTICAL MAP  
 STATE #8-36  
 CLOSURE ASSESSMENT  
 40.448100 / -104.848090  
 NW¼ NW¼ SEC.36 T6N R67W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-11981  
 REMEDIATION # 21936



DRAWN BY:  
 JF

FIG. NO. 3

**EAGLE ENVIRONMENTAL CONSULTING, LLC**  
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## **TABLES**

**Table 1: Photoionization Detector Reading Summary**

**Table 2: Soil Analytical Results Summary**

**TABLE 1**  
**PHOTOIONIZATION DETECTOR READING SUMMARY**  
**STATE #8-36**  
**CLOSURE ASSESSMENT**  
**40.448100 / -104.848090**  
**NW¼ NW¼ SEC.36 T6N R67W 6PM**  
**WELD COUNTY, COLORADO**  
**API # 05-123-11981**  
**REMEDIATION # 21936**

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WH-SS-01 @ 5' (40.448120 / -104.848089)	11/14/22	5	0.9	N
WH-SS-02 @ 5' (40.448105 / -104.848069)	11/14/22	5	0.5	N
WH-SS-03 @ 5' (40.448085 / -104.848089)	11/14/22	5	0.4	N
WH-SS-04 @ 5' (40.448103 / -104.848111)	11/14/22	5	0.6	N
WH-FS-01 @ 6' (40.448101 / -104.848090)	11/14/22	6	1.7	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector				



TABLE 2  
SOIL ANALYTICAL RESULTS SUMMARY  
STATE #8-36  
CLOSURE ASSESSMENT  
40.448100 / -104.848090  
NW¼ NW¼ SEC.36 T6N R67W 6PM  
WELD COUNTY, COLORADO  
API # 05-123-11981  
REMEDATION # 21936

Sample Location				WH-FS-01 @ 6'
(Latitude / Longitude)				(40.448101 / -104.848090)
Sample Date				11/14/22
Sample Depth				6'
PID Reading (ppm-v)				1.7
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	--	27.1
TPH-RRO	mg/kg	500	--	<100
<b>Polycyclic Aromatics 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	0.000556
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	0.000549
Fluorene	mg/kg	240	0.54	0.000431
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
<b>Soil Suitability (Inorganics)</b>				
Boron	mg/L	2	--	0.585
pH	standard unit	6-8.3	--	7.78
Sodium Adsorption Ratio (SAR)	--	<6	--	0.890
Specific Conductance (EC)	mmhos/cm	<4	--	3.02
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 COGCC Table 915-1 Regulatory Limits.				



## **ATTACHMENT A**

### **Photo Log**

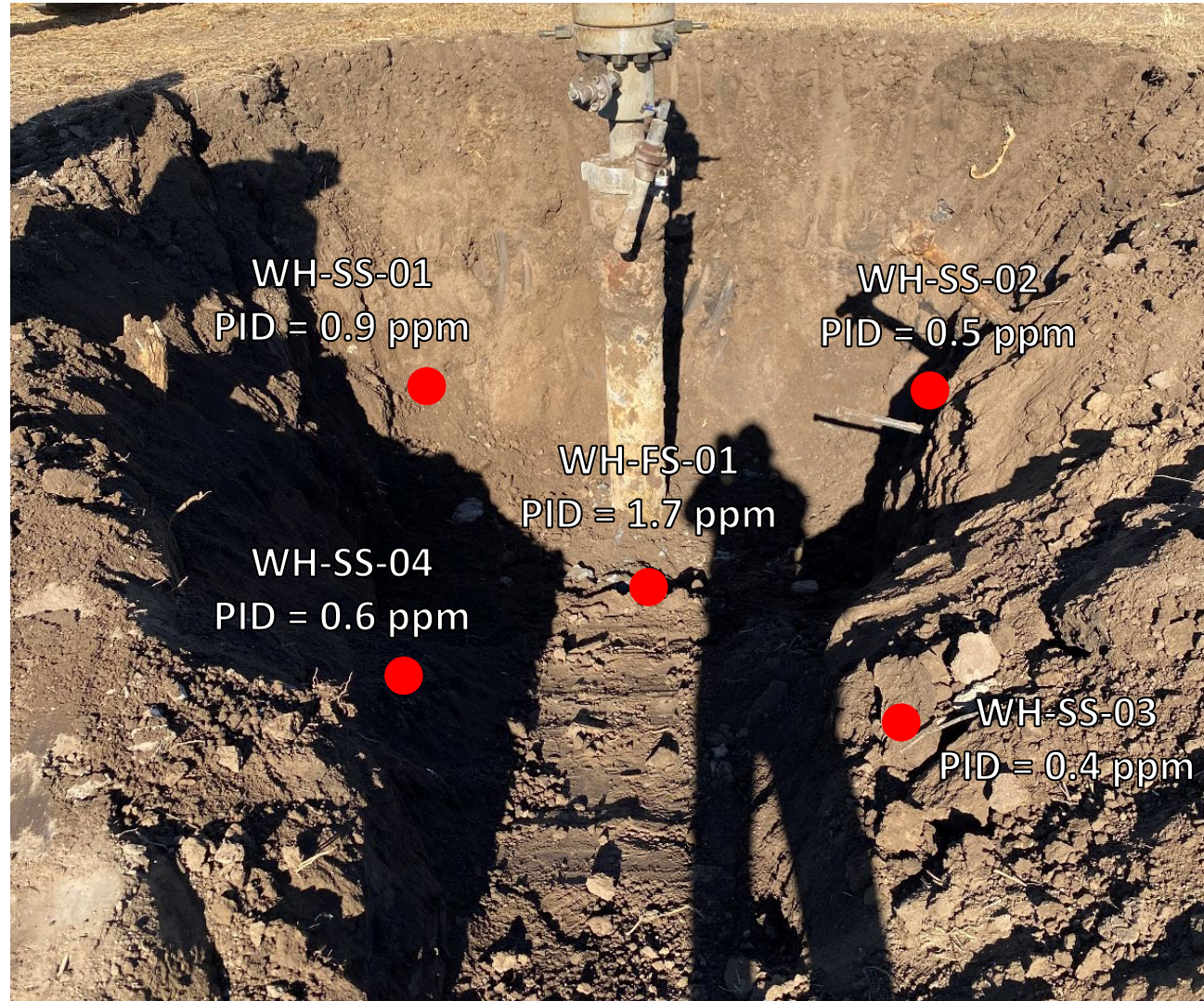
State #8-36  
API # 05-123-11981  
Remediation # 21936

Closure Assessment

November 2022



# Wellhead Excavation – 11/14/22



Looking northeast

No petroleum hydrocarbon staining or odor observed



## **ATTACHMENT B**

### **Laboratory Analytical Report**



November 28, 2022

**Eagle Environmental Consulting, Inc.**

**Martin C Eckert III**

**8000 W 44th Ave**

**Wheat Ridge CO 80033**

**Project Name - Noble - State #8-36**

**Project Number - [none]**

Attached are your analytical results for Noble - State #8-36 received by Origins Laboratory, Inc. November 14, 2022. This project is associated with Origins project number Y211385-01.

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 - State #8-36

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@6'	Y211385-01	Soil	November 14, 2022 13:20	11/14/2022 14:55

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 - State #8-36

Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: 4211385

Client: Eagle Environmental  
 Client Project ID: State #8-36

Checklist Completed by: TJH/EHS

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

Date/time completed: 11/14/12

Airbill #: n/a

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

Water  Other:

Cooler Number/Temperature: 1 13.4-c /      °c /      °c (Describe) °c

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 <sup>(1)?</sup>	/			
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 <sup>(1)?</sup>	/			
Was adequate sample volume provided <sup>(1)?</sup>	/			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)?</sup>		/		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)?</sup>	/			
Does the COC agree with the number and type of sample bottles received <sup>(1)?</sup>	/			
Do the sample IDs on the bottle labels match the COC <sup>(1)?</sup>	/			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)?</sup>	/			
For volatiles in water – is there headspace (> ¼ inch bubble) present? <b>If yes, contact client and note in narrative.</b>			/	
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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			/	
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: JTB (Project Manager)

11-15-12  
 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.

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

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - State #8-36

**WH-FS-01@6'**

**11/14/2022 1:20:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211385-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.585		0.0990	mg/L	1	B2K1607	11/16/2022	11/17/2022	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	27.1		25.0	mg/kg	1	B2K1520	11/15/2022	11/21/2022	
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: <i>o</i> -Terphenyl	88.6 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2K1624	11/16/2022	11/18/2022	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	114 %		70-130			"	"	"	
Surrogate: Toluene-d8	101 %		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 - State #8-36

**WH-FS-01@6'**

**11/14/2022 1:20:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y211385-01 (Soil)**

**GBTEX+TMBs by 8260D**

Surrogate: 4-Bromofluorobenzene	99.6 %		70-130			B2K16 24	11/16/2022	11/18/2022	
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**Metals by Saturated Paste by EPA 6010**

Calcium	27.4		0.499	meq/L	10	[CALC]	11/17/2022	11/18/2022	
Magnesium	9.88		0.823	"	"	"	"	"	
Sodium	3.84		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L649294	11/17/2022	11/17/2022	
2-Methylnaphthalene	ND	0.00194	0.00201	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	0.000556	0.000493	0.00067	"	"	"	"	"	J
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	0.000549	0.000394	0.00067	"	"	"	"	"	J
Fluorene	0.000431	0.000286	0.00067	"	"	"	"	"	J

Origins Laboratory, Inc.



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

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

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - State #8-36

**WH-FS-01@6'**

**11/14/2022 1:20:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y211385-01 (Soil)**

**PAH by 8270D SIM**

Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	mg/Kg	1	L649294	11/17/2022	11/17/2022	
Naphthalene	ND	0.00145	0.00201	"	"	"	"	"	
Pyrene	ND	0.000643	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	49.2 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	57.4 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	52.9 %		29-110			"	"	"	

**pH in Soil by 9045D**

pH	7.78			pH Units	1	B2K1717	11/17/2022	11/18/2022	
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**SAR by 20B Saturated Paste**

SAR	0.890			SAR	1	B2K1707	11/17/2022	11/18/2022	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	3.02		0.00500	mmhos/cm	1	B2K1721	11/17/2022	11/18/2022	
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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 - State #8-36

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B2K1520 - EPA 3580</b>										
<b>Blank (B2K1520-BLK1)</b>										
					Prepared: 11/15/2022 Analyzed: 11/20/2022					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	24		"	24.9		95.5	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 - State #8-36

**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 B2K1520 - EPA 3580**

**LCS (B2K1520-BS1)**

Prepared: 11/15/2022 Analyzed: 11/20/2022

Diesel (C10-C28)	1050	50.0	mg/kg	1000		105	70-130			
Residual Range Organics (C28-C40)	922	200	"	1000		92.2	70-130			
Surrogate: o-Terphenyl	52		"	49.8		105	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 - State #8-36

**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 B2K1520 - EPA 3580**

<b>Matrix Spike (B2K1520-MS1)</b>	<b>Source: Y211344-01</b>			<b>Prepared: 11/15/2022 Analyzed: 11/20/2022</b>						
Diesel (C10-C28)	1090	50.0	mg/kg	1000	ND	109	70-130			
Residual Range Organics (C28-C40)	932	200	"	1000	ND	93.2	70-130			
Surrogate: o-Terphenyl	46		"	49.8		92.9	50-150			

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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 - State #8-36

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B2K1520 - EPA 3580</b>										
<b>Matrix Spike Dup (B2K1520-MSD1)</b>					<b>Source: Y211344-01</b>					Prepared: 11/15/2022 Analyzed: 11/20/2022
Diesel (C10-C28)	1120	50.0	mg/kg	1000	ND	112	70-130	2.90	35	
Residual Range Organics (C28-C40)	949	200	"	1000	ND	94.9	70-130	1.78	35	
Surrogate: o-Terphenyl	46		"	49.8		93.5	50-150			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - State #8-36

**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 B2K1624 - EPA 5030 (soil)**

**Blank (B2K1624-BLK1)**

Prepared: 11/16/2022 Analyzed: 11/18/2022

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	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125	103		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	105		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	96.7		70-130			

Origins Laboratory, Inc.



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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - State #8-36

**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 B2K1624 - EPA 5030 (soil)**

**LCS (B2K1624-BS1)**

Prepared: 11/16/2022 Analyzed: 11/18/2022

1,2,4-Trimethylbenzene	0.102	0.00200	mg/kg	0.100		102	70-130			
1,3,5-Trimethylbenzene	0.101	0.00200	"	0.100		101	70-130			
Benzene	0.0998	0.00200	"	0.100		99.8	70-130			
Ethylbenzene	0.106	0.00200	"	0.100		106	70-130			
Naphthalene	0.106	0.00380	"	0.100		106	70-130			
Toluene	0.106	0.00200	"	0.100		106	70-130			
o-Xylene	0.105	0.00200	"	0.100		105	70-130			
m,p-Xylene	0.209	0.00400	"	0.200		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		102	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		105	70-130			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - State #8-36

**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 B2K1624 - EPA 5030 (soil)

Matrix Spike (B2K1624-MS1)	Source: Y211371-01			Prepared: 11/16/2022 Analyzed: 11/18/2022						
1,2,4-Trimethylbenzene	0.102	0.00200	mg/kg	0.100	ND	102	70-130			
1,3,5-Trimethylbenzene	0.101	0.00200	"	0.100	ND	101	70-130			
Benzene	0.104	0.00200	"	0.100	ND	104	70-130			
Ethylbenzene	0.108	0.00200	"	0.100	ND	108	70-130			
Naphthalene	0.100	0.00380	"	0.100	ND	100	70-130			
Toluene	0.108	0.00200	"	0.100	ND	108	70-130			
o-Xylene	0.106	0.00200	"	0.100	ND	106	70-130			
m,p-Xylene	0.210	0.00400	"	0.200	ND	105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		103	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

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 Project Number: [none]  
 Project: Noble - State #8-36

**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 B2K1624 - EPA 5030 (soil)

Matrix Spike Dup (B2K1624-MSD1)	Source: Y211371-01			Prepared: 11/16/2022 Analyzed: 11/18/2022						
1,2,4-Trimethylbenzene	0.0898	0.00200	mg/kg	0.100	ND	89.8	70-130	12.3	20	
1,3,5-Trimethylbenzene	0.0888	0.00200	"	0.100	ND	88.8	70-130	12.6	20	
Benzene	0.101	0.00200	"	0.100	ND	101	70-130	2.38	20	
Ethylbenzene	0.0986	0.00200	"	0.100	ND	98.6	70-130	9.36	20	
Naphthalene	0.0963	0.00380	"	0.100	ND	96.3	70-130	4.21	20	
Toluene	0.101	0.00200	"	0.100	ND	101	70-130	6.13	20	
o-Xylene	0.0972	0.00200	"	0.100	ND	97.2	70-130	8.49	20	
m,p-Xylene	0.189	0.00400	"	0.200	ND	94.4	70-130	10.7	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - State #8-36

**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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**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 B2K1607 - DTPA Sorbitol Preparation**

**Blank (B2K1607-BLK1)**

Prepared: 11/16/2022 Analyzed: 11/17/2022

Boron ND 0.100 mg/L

**Duplicate (B2K1607-DUP1)**

Source: Y211383-01

Prepared: 11/16/2022 Analyzed: 11/17/2022

Boron 0.105 0.0981 mg/L 0.126 18.5 50

**Batch B2K1707 - Saturated Paste Metals**

**Blank (B2K1707-BLK1)**

Prepared: 11/17/2022 Analyzed: 11/18/2022

Calcium PPM ND 10.0 mg/L

SAR 0.00 SAR

Magnesium PPM ND 10.0 mg/L

Sodium PPM ND 10.0 "

**Duplicate (B2K1707-DUP1)**

Source: Y211383-01

Prepared: 11/17/2022 Analyzed: 11/18/2022

SAR 0.00 SAR 10.6 200 200

Calcium PPM 2.68 10.0 mg/L 7.69 96.7 50 QR-05

Magnesium PPM 0.932 10.0 " 1.98 71.8 50 QR-05

Sodium PPM 117 10.0 " 128 8.53 50

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - State #8-36

**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 B2K1717 - Saturated Paste pH/EC</b>										
<b>Duplicate (B2K1717-DUP1)</b>		<b>Source: Y211383-01</b>			Prepared: 11/17/2022 Analyzed: 11/18/2022					
pH	9.21		pH Units		8.90			3.42	25	
<b>Batch B2K1721 - Saturated Paste pH/EC</b>										
<b>Blank (B2K1721-BLK1)</b>		Prepared: 11/17/2022 Analyzed: 11/18/2022								
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
<b>Duplicate (B2K1721-DUP1)</b>		<b>Source: Y211383-01</b>			Prepared: 11/17/2022 Analyzed: 11/18/2022					
Specific Conductance (EC)	0.630	0.00500	mmhos/cm		0.539			15.6	25	

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - State #8-36

**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 L649294 - 3550B

MSD (L 91302-MSD-L649294)		Source: 91302			Prepared: 11/17/2022 Analyzed: 11/17/2022					
2-Methylnaphthalene	0.0686	0.00201	mg/Kg	0.165	<0.00194	41.5	30-130	11.6	30	
Fluorene	0.072	0.00067	"	0.165	<0.000286	43.6	30-130	31.7	30	*
Pyrene	0.071	0.00067	"	0.165	<0.000643	43	30-130	14.6	30	
Indeno(1,2,3-cd)pyrene	0.0526	0.00067	"	0.165	<0.000627	31.8	30-130	26.8	30	
Fluoranthene	0.0723	0.00067	"	0.165	<0.000394	43.8	30-130	16.1	30	
Dibenz(a,h)anthracene	0.0678	0.00067	"	0.165	<0.000614	41	30-130	21.8	30	
Chrysene	0.0663	0.00067	"	0.165	<0.000624	40.1	30-130	16.4	30	
Naphthalene	0.0682	0.00201	"	0.165	<0.00145	41.3	30-130	13.5	30	
1-Methylnaphthalene	0.0549	0.00201	"	0.165	<0.00109	33.2	30-130	15.7	30	
Benzo(k)fluoranthene	0.0471	0.00067	"	0.165	<0.000437	28.5	30-130	12.3	30	
Acenaphthene	0.0762	0.00067	"	0.165	<0.000304	46.1	30-130	6.9	30	
Anthracene	0.0691	0.00067	"	0.165	<0.000334	41.8	30-130	28	30	
Benzo(a)anthracene	0.0707	0.00067	"	0.165	<0.000493	42.8	30-130	16.9	30	
Benzo(a)pyrene	0.0733	0.00067	"	0.165	<0.000468	44.4	30-130	11.6	30	
Benzo(b)fluoranthene	0.0464	0.00067	"	0.165	<0.000585	28.1	30-130	13.8	30	
Surrogate: 2-Fluorobiphenyl	37.5		"	0.33	159	37.5	33-115			
Surrogate: Nitrobenzene-d5	37.2		"	0.33	155	37.2	29-110			
Surrogate: 4-Terphenyl-d14	51.2		"	0.33	174	51.2	33-122			

MS (L 91302-MS-L649294)		Source: 91302			Prepared: 11/17/2022 Analyzed: 11/17/2022					
Benzo(k)fluoranthene	0.0533	0.00067	mg/Kg	0.166	<0.000437	32.1	30-130			
Acenaphthene	0.0817	0.00067	"	0.166	<0.000304	49.2	30-130			
Naphthalene	0.0781	0.00201	"	0.166	<0.00145	47	30-130			
Indeno(1,2,3-cd)pyrene	0.0689	0.00067	"	0.166	<0.000627	41.5	30-130			
Fluorene	0.0992	0.00067	"	0.166	<0.000286	59.7	30-130			
Fluoranthene	0.0615	0.00067	"	0.166	<0.000394	37	30-130			
Dibenz(a,h)anthracene	0.0844	0.00067	"	0.166	<0.000614	50.8	30-130			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - State #8-36

**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 L649294 - 3550B**

MS (L 91302-MS-L649294)	Source: 91302			Prepared: 11/17/2022 Analyzed: 11/17/2022						
Chrysene	0.0782	0.00067	mg/Kg	0.166	<0.000624	47.1	30-130			
1-Methylnaphthalene	0.0643	0.00201	"	0.166	<0.00109	38.7	30-130			
Benzo(a)pyrene	0.0824	0.00067	"	0.166	<0.000468	49.6	30-130			
Anthracene	0.0521	0.00067	"	0.166	<0.000334	31.3	30-130			
Pyrene	0.0613	0.00067	"	0.166	<0.000643	36.9	30-130			
2-Methylnaphthalene	0.0771	0.00201	"	0.166	<0.00194	46.4	30-130			
Benzo(b)fluoranthene	0.0533	0.00067	"	0.166	<0.000585	32.1	30-130			
Benzo(a)anthracene	0.0838	0.00067	"	0.166	<0.000493	50.4	30-130			
Surrogate: Nitrobenzene-d5	47.7		"	0.331	155	47.7	29-110			
Surrogate: 4-Terphenyl-d14	45.6		"	0.331	174	45.6	33-122			
Surrogate: 2-Fluorobiphenyl	48		"	0.331	159	48	33-115			

LCS (LCS-L649294)	Prepared: 11/17/2022 Analyzed: 11/17/2022									
Chrysene	0.0841	0.00067	mg/Kg	0.167		50.3	30-130			
Dibenz(a,h)anthracene	0.0971	0.00067	"	0.167		58.1	30-130			
Fluoranthene	0.0895	0.00067	"	0.167		53.5	30-130			
Fluorene	0.0508	0.00067	"	0.167		30.4	30-130			
Indeno(1,2,3-cd)pyrene	0.0783	0.00067	"	0.167		46.8	30-130			
Naphthalene	0.0822	0.00201	"	0.167		49.2	30-130			
Benzo(k)fluoranthene	0.0587	0.00067	"	0.167		35.1	30-130			
Pyrene	0.0869	0.00067	"	0.167		52	30-130			
Benzo(a)pyrene	0.0857	0.00067	"	0.167		51.3	30-130			
Benzo(a)anthracene	0.0862	0.00067	"	0.167		51.6	30-130			
Anthracene	0.0826	0.00067	"	0.167		49.4	30-130			
Acenaphthene	0.0815	0.00067	"	0.167		48.8	30-130			
2-Methylnaphthalene	0.068	0.00201	"	0.167		40.7	30-130			
1-Methylnaphthalene	0.076	0.00201	"	0.167		45.5	30-130			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - State #8-36

**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 L649294 - 3550B**

**LCS (LCS-L649294)**

Prepared: 11/17/2022 Analyzed: 11/17/2022

Benzo(b)fluoranthene	0.0528	0.00067	mg/Kg	0.167		31.6	30-130			
Surrogate: Nitrobenzene-d5	49.2		"	0.333		49.2	29-110			
Surrogate: 4-Terphenyl-d14	66		"	0.333		66	33-122			
Surrogate: 2-Fluorobiphenyl	51.9		"	0.333		51.9	33-115			

**LRB (LRB-L649294)**

Prepared: 11/17/2022 Analyzed: 11/17/2022

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	56.4		"	0.333		56.4	29-110			
Surrogate: 4-Terphenyl-d14	66.3		"	0.333		66.3	33-122			
Surrogate: 2-Fluorobiphenyl	55.5		"	0.333		55.5	33-115			

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Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - State #8-36

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**Notes and Definitions**

U Sample is Non-Detect.

QR-05 Sample results fall below the RL. RPD results are insignificant for batch and are thus acceptable.

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.

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Jordan A. Bynon, Project Manager