

Wellhead Closure Checklist

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

Additional attachments (optional):		Pit Closure <u> </u>		Tank Battery Closure <u> </u>		Flowline Closure <u> </u>		Partially Buried Vault Closure <u> </u>	
Site Name & COGCC Facility Number: Lockman #10-1014		Date: 12-02-22					Remediation Project #: 24934		
Associated Wells: 05-123-17933		Age of Site: Years					Number of Photos Attached: 1		
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple)						40.324620 / -104.533530			
Estimated Facility Size (acres):									
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.) Good									
USCS Soil Type: CL				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	05-123-17933								
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	2.4	1.7	1.8	2.4	3.1				
Sample taken? Location/Sample ID#	WH-SS-01	WH-SS-02	WH-SS-03	WH-SS-04	WH-FS-01				
Photo Number(s)	See photo log								
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: 3.1				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:					
N/A									
Lateral extent:				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				N/A					
Free product observed? Yes No				Volume of groundwater removed prior to sampling:					
				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:									

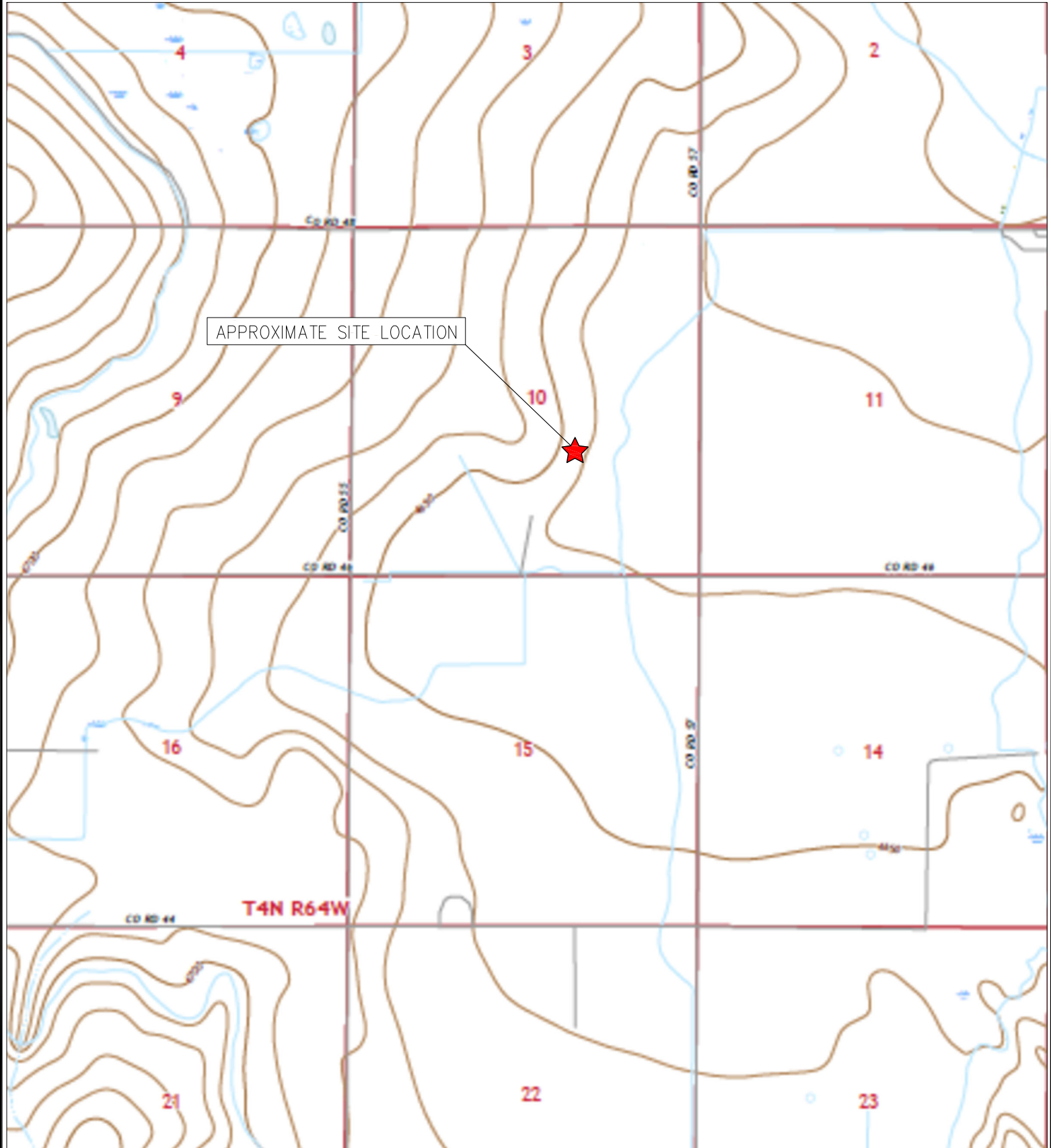


FIGURES

Figure 1: Topographic Site Location Map

Figure 2: Aerial Site Location Map

Figure 3: Soil Analytical Map



APPROXIMATE SITE LOCATION

T4N R64W



TOPOGRAPHIC SITE LOCATION MAP
 LOCKMAN #10-1014
 CLOSURE ASSESSMENT
 40.324620 / -104.533530
 NW¼ SE¼ SEC.10 T4N R64W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-17933
 REMEDIATION # 24934



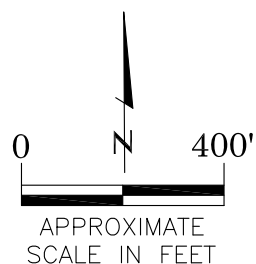
EAGLE
 ENVIRONMENTAL
 CONSULTING, LLC

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



LEGEND

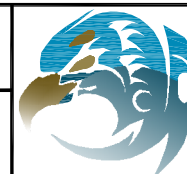
- FORMER LOCKMAN #10-1014 WELLHEAD (PLUGGED AND ABANDONED)
- ASSOCIATED SEPARATOR
- APPROXIMATE FLOWLINE LOCATION



AERIAL SITE LOCATION MAP
 LOCKMAN #10-1014
 CLOSURE ASSESSMENT
 40.324620 / -104.533530
 NW¼ SE¼ SEC.10 T4N R64W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-17933
 REMEDIATION # 24934

FIGURE NO.
2

DRAWN BY:
IM



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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 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 ECMC TABLE 915-1 REGULATORY LIMITS.

ECMC = ENERGY & CARBON MANAGEMENT COMMISSION

SOIL ANALYTICAL MAP
 LOCKMAN #10-1014
 CLOSURE ASSESSMENT
 40.324620 / -104.533530
 NW¼ SE¼ SEC.10 T4N R64W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-17933
 REMEDIATION # 24934

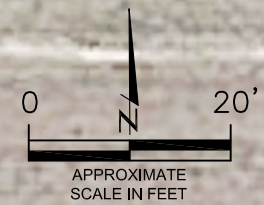


FIGURE NO.
3
DRAWN BY:
JF

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 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
LOCKMAN #10-1014
CLOSURE ASSESSMENT
40.324620 / -104.533530
NW¼ SE¼ SEC.10 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-17933
REMEDIATION # 24934

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WH-SS-01 @ 5' (40.324647 / -104.533532)	12/02/22	5	2.4	N
WH-SS-02 @ 5' (40.324631 / -104.533513)	12/02/22	5	1.7	N
WH-SS-03 @ 5' (40.324614 / -104.533533)	12/02/22	5	1.8	N
WH-SS-04 @ 5' (40.324630 / -104.533552)	12/02/22	5	2.4	N
WH-FS-01 @ 6' (40.324631 / -104.533531)	12/02/22	6	3.1	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector				

TABLE 2
SOIL ANALYTICAL RESULTS SUMMARY
LOCKMAN #10-1014
CLOSURE ASSESSMENT
40.324620 / -104.533530
NW¼ SE¼ SEC.10 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-17933
REMEDATION # 24934

Sample Location		WH-FS-01 @ 6'		
(Latitude / Longitude)		(40.324631 / -104.533531)		
Sample Date		12/2/2022		
Sample Depth		6'		
PID Reading (ppm-v)		3.1		
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 Aromatics Hydrocarbons				
1-Methyl-naphthalene	mg/kg	18	0.006	0.00169
2-Methyl-naphthalene	mg/kg	24	0.019	0.00214
Acenaphthene	mg/kg	360	0.55	0.000389
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	0.000498
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	--	1.24
pH	standard unit	6-8.3	--	8.22
Sodium Adsorption Ratio (SAR)	--	<6	--	5.46
Specific Conductance (EC)	mmhos/cm	<4	--	1.73
ECMC = Energy & Carbon Management Commission		VOCs - Volatile Organic Compounds		
mg/kg = milligrams per kilogram				
mmhos/cm = millimhos per centimeter		RSSLs = Residential Soil Screening Levels		
PID = Photoionization Detector		GSSLs = Protection of Groundwater Soil Screening Levels		
ppm-v = parts per million by volume		TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics		
mg/L = milligrams per liter		TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics		
SAR = Sodium Adsorption Ratio		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.				



ATTACHMENT A

Photo Log

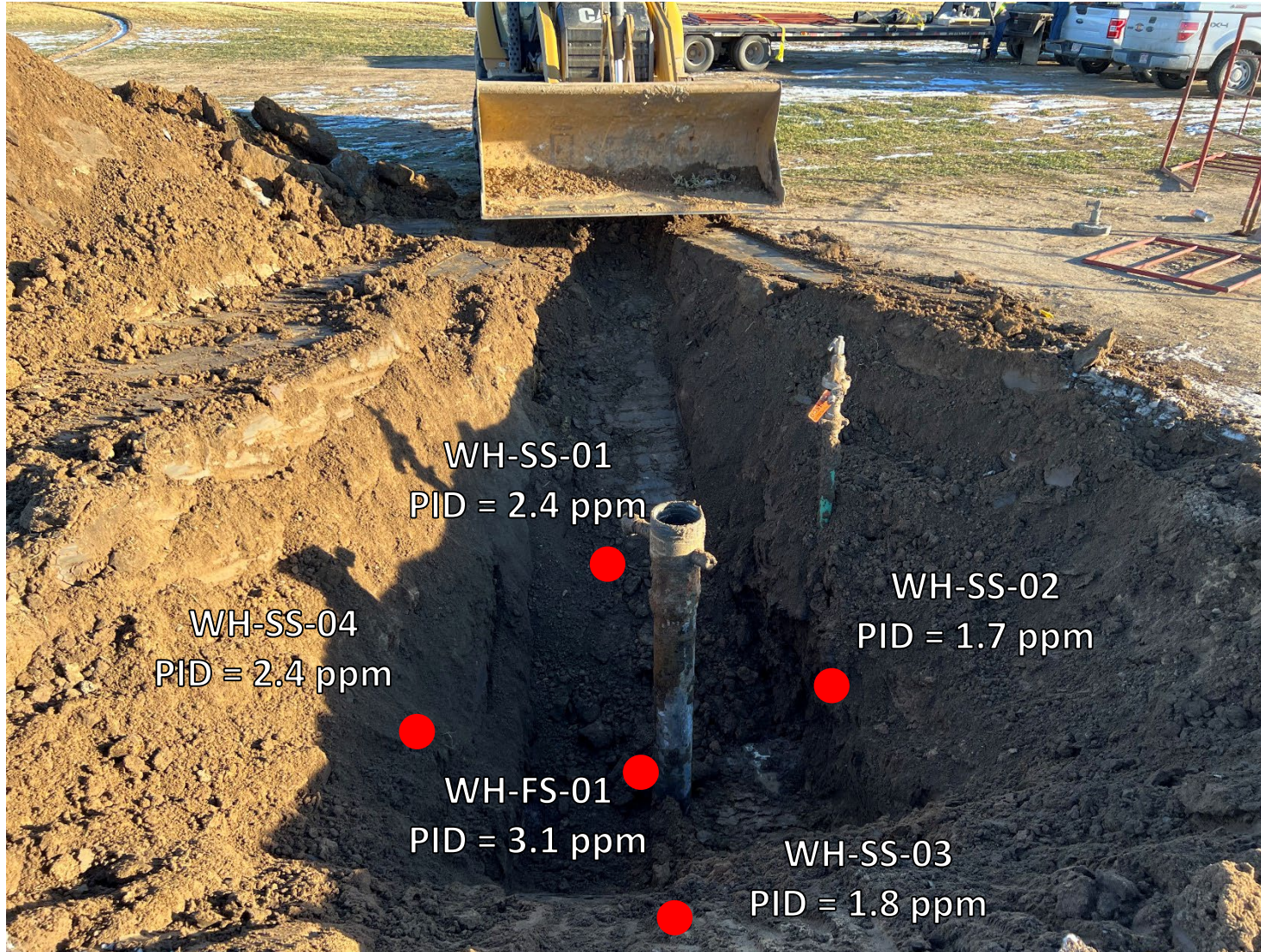
Lockman #10-1014
API # 05-123-17933
Remediation # 24934

Closure Assessment

December 2022



Wellhead Excavation – 12/02/22



Looking north

No petroleum hydrocarbon staining or odor observed



ATTACHMENT B

Laboratory Analytical Report



December 13, 2022

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - Lockman #10-1014

Project Number - [none]

Attached are your analytical results for Noble - Lockman #10-1014 received by Origins Laboratory, Inc. December 02, 2022. This project is associated with Origins project number Y212046-01.

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 - Lockman #10-1014

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@6'	Y212046-01	Soil	December 2, 2022 8:34	12/02/2022 12:50

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 - Lockman #10-1014

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

Sample Receipt Checklist

Origins Work Order: Y212046 Client: Eagle Environmental
 Checklist Completed by: DE tto Client Project ID: Lockman#10-1014
 Date/time completed: 12/02/2022 Shipped Via: HD
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: NO

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 Cooler Number/Temperature: 1 / 4.0 °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 ⁽¹⁾ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
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)			X	
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: JB (Project Manager) Date/Time Reviewed: 12-5-22

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 - Lockman #10-1014

WH-FS-01@6'

12/2/2022 8:34:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y212046-01 (Soil)

Boron (DTPA Sorbitol)

Boron	1.24		0.0999	mg/L	1	B2L0607	12/06/2022	12/07/2022	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2L0501	12/05/2022	12/05/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	74.3 %		50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2L0201	12/02/2022	12/07/2022	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	106 %		70-130			"	"	"	
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Origins Laboratory, Inc.



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

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lockman #10-1014

WH-FS-01@6'
 12/2/2022 8:34:00AM

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

Origins Laboratory, Inc.
 Y212046-01 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	91.5 %		70-130			B2L02 01	12/02/2022	12/07/2022	
Surrogate: 4-Bromofluorobenzene	91.0 %		70-130			"	"	"	

Metals by Saturated Paste by EPA 6010

Calcium	3.52		0.499	meq/L	10	[CALC]	12/05/2022	12/06/2022	
Magnesium	2.43		0.823	"	"	"	"	"	
Sodium	9.41		0.435	"	"	"	"	"	

PAH by 8270D SIM

1-Methylnaphthalene	0.00169	0.00109	0.00201	mg/Kg	1	L651969	12/05/2022	12/07/2022	J
2-Methylnaphthalene	0.00214	0.00194	0.00201	"	"	"	"	"	
Acenaphthene	0.000389	0.000304	0.00067	"	"	"	"	"	J
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	"	"	"	"	"	
Fluorene	0.000498	0.000286	0.00067	"	"	"	"	"	J

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 - Lockman #10-1014

WH-FS-01@6'

12/2/2022 8:34:00AM

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

Waypoint Analytical, LLC.
Y212046-01 (Soil)

PAH by 8270D SIM

Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	mg/Kg	1	L651969	12/05/2022	12/07/2022	
Naphthalene	ND	0.00145	0.00201	"	"	"	"	"	
Pyrene	ND	0.000643	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	43.3 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	54.9 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	44.5 %		29-110			"	"	"	

pH in Soil by 9045D

pH	8.22			pH Units	1	B2L0507	12/05/2022	12/06/2022	
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SAR by 20B Saturated Paste

SAR	5.46			SAR	1	B2L0505	12/05/2022	12/06/2022	
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	1.73		0.00500	mmhos/cm	1	B2L0507	12/05/2022	12/06/2022	
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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 - Lockman #10-1014

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 B2L0201 - EPA 5030 (soil)

Blank (B2L0201-BLK1)

Prepared: 12/02/2022 Analyzed: 12/06/2022

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		101	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.2	70-130			

Origins Laboratory, Inc.



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 8000 W 44th Ave
 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lockman #10-1014

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 B2L0201 - EPA 5030 (soil)

LCS (B2L0201-BS1)

Prepared: 12/02/2022 Analyzed: 12/06/2022

1,2,4-Trimethylbenzene	0.103	0.00200	mg/kg	0.100		103	70-130			
1,3,5-Trimethylbenzene	0.103	0.00200	"	0.100		103	70-130			
Benzene	0.107	0.00200	"	0.100		107	70-130			
Ethylbenzene	0.0993	0.00200	"	0.100		99.3	70-130			
Naphthalene	0.0999	0.00380	"	0.100		99.9	70-130			
Toluene	0.102	0.00200	"	0.100		102	70-130			
o-Xylene	0.0965	0.00200	"	0.100		96.5	70-130			
m,p-Xylene	0.198	0.00400	"	0.200		99.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		98.8	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		92.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		88.1	70-130			

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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 - Lockman #10-1014

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 B2L0201 - EPA 5030 (soil)

Matrix Spike (B2L0201-MS1)	Source: Y212038-01			Prepared: 12/02/2022 Analyzed: 12/06/2022						
1,2,4-Trimethylbenzene	0.0894	0.00200	mg/kg	0.100	ND	89.4	70-130			
1,3,5-Trimethylbenzene	0.0883	0.00200	"	0.100	ND	88.3	70-130			
Benzene	0.0996	0.00200	"	0.100	ND	99.6	70-130			
Ethylbenzene	0.0860	0.00200	"	0.100	ND	86.0	70-130			
Naphthalene	0.101	0.00380	"	0.100	ND	101	70-130			
Toluene	0.0904	0.00200	"	0.100	ND	90.4	70-130			
o-Xylene	0.0847	0.00200	"	0.100	ND	84.7	70-130			
m,p-Xylene	0.166	0.00400	"	0.200	0.00172	82.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		110	70-130			
Surrogate: Toluene-d8	0.11		"	0.125		89.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		88.1	70-130			

Origins Laboratory, Inc.



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 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lockman #10-1014

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 B2L0201 - EPA 5030 (soil)

Matrix Spike Dup (B2L0201-MSD1)	Source: Y212038-01			Prepared: 12/02/2022 Analyzed: 12/06/2022						
1,2,4-Trimethylbenzene	0.0917	0.00200	mg/kg	0.100	ND	91.7	70-130	2.61	20	
1,3,5-Trimethylbenzene	0.0894	0.00200	"	0.100	ND	89.4	70-130	1.28	20	
Benzene	0.103	0.00200	"	0.100	ND	103	70-130	3.10	20	
Ethylbenzene	0.0881	0.00200	"	0.100	ND	88.1	70-130	2.34	20	
Naphthalene	0.107	0.00380	"	0.100	ND	107	70-130	6.27	20	
Toluene	0.0923	0.00200	"	0.100	ND	92.3	70-130	2.06	20	
o-Xylene	0.0861	0.00200	"	0.100	ND	86.1	70-130	1.66	20	
m,p-Xylene	0.171	0.00400	"	0.200	0.00172	84.6	70-130	2.92	20	
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		111	70-130			
Surrogate: Toluene-d8	0.11		"	0.125		88.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		87.6	70-130			

Origins Laboratory, Inc.



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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lockman #10-1014

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 B2L0501 - EPA 3580										
Blank (B2L0501-BLK1)										
					Prepared: 12/05/2022 Analyzed: 12/05/2022					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	26		"	24.9		104	50-150			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lockman #10-1014

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 B2L0501 - EPA 3580

LCS (B2L0501-BS1)

Prepared: 12/05/2022 Analyzed: 12/05/2022

Diesel (C10-C28)	1040	50.0	mg/kg	1000		104	70-130			
Residual Range Organics (C28-C40)	971	200	"	1000		97.1	70-130			
Surrogate: o-Terphenyl	44		"	49.8		87.9	50-150			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lockman #10-1014

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 B2L0501 - EPA 3580

Matrix Spike (B2L0501-MS1)	Source: Y212041-01			Prepared: 12/05/2022 Analyzed: 12/05/2022						
Diesel (C10-C28)	1030	50.0	mg/kg	1000	ND	103	70-130			
Residual Range Organics (C28-C40)	985	200	"	1000	ND	98.5	70-130			
Surrogate: o-Terphenyl	42		"	49.8		84.7	50-150			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lockman #10-1014

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 B2L0501 - EPA 3580

Matrix Spike Dup (B2L0501-MSD1)	Source: Y212041-01		Prepared: 12/05/2022 Analyzed: 12/05/2022							
Diesel (C10-C28)	1020	50.0	mg/kg	1000	ND	102	70-130	0.844	35	
Residual Range Organics (C28-C40)	972	200	"	1000	ND	97.2	70-130	1.25	35	
Surrogate: o-Terphenyl	42		"	49.8		85.0	50-150			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lockman #10-1014

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 B2L0505 - Saturated Paste Metals

Blank (B2L0505-BLK1)

Prepared: 12/05/2022 Analyzed: 12/06/2022

SAR	0.00		SAR							
Calcium PPM	ND	10.0	mg/L							
Magnesium PPM	ND	10.0	"							
Sodium PPM	ND	10.0	"							

Duplicate (B2L0505-DUP1)

Source: Y211665-01

Prepared: 12/05/2022 Analyzed: 12/06/2022

Calcium PPM	414	10.0	mg/L		358		14.3	50		
SAR	0.00		SAR		16.0		200	200		
Magnesium PPM	302	10.0	mg/L		281		7.23	50		
Sodium PPM	1680	10.0	"		1660		1.07	50		

Batch B2L0607 - DTPA Sorbitol Preparation

Blank (B2L0607-BLK1)

Prepared: 12/06/2022 Analyzed: 12/07/2022

Boron	ND	0.100	mg/L							
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Duplicate (B2L0607-DUP1)

Source: Y212041-01

Prepared: 12/06/2022 Analyzed: 12/07/2022

Boron	0.504	0.100	mg/L		0.436		14.5	50		
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 Project Number: [none]
 Project: Noble - Lockman #10-1014

Saturated Paste - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B2L0507 - Saturated Paste pH/EC

Blank (B2L0507-BLK1)

Prepared: 12/05/2022 Analyzed: 12/06/2022

Specific Conductance (EC) ND 0.00500 mmhos/cm

Duplicate (B2L0507-DUP1)

Source: Y211668-01

Prepared: 12/05/2022 Analyzed: 12/06/2022

pH 8.02 pH Units 8.16 1.73 25

Specific Conductance (EC) 1.24 0.00500 mmhos/cm 1.31 5.87 25

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lockman #10-1014

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 L651969 - 3550B

MSD (L 97249-MSD-L651969)	Source: 97249			Prepared: 12/05/2022 Analyzed: 12/07/2022						
2-Methylnaphthalene	0.0768	0.00201	mg/Kg	0.167	<0.00194	45.9	30-130	4.6	30	
Fluorene	0.0817	0.00067	"	0.167	<0.000286	48.9	30-130	0.8	30	
Pyrene	0.081	0.00067	"	0.167	<0.000643	48.5	30-130	6.6	30	
Indeno(1,2,3-cd)pyrene	0.0937	0.00067	"	0.167	<0.000627	56.1	30-130	10.4	30	
Fluoranthene	0.0823	0.00067	"	0.167	<0.000394	49.2	30-130	6.6	30	
Dibenz(a,h)anthracene	0.109	0.00067	"	0.167	<0.000614	65.2	30-130	7.9	30	
Chrysene	0.0857	0.00067	"	0.167	<0.000624	51.3	30-130	1.1	30	
Naphthalene	0.0741	0.00201	"	0.167	<0.00145	44.3	30-130	1.7	30	
1-Methylnaphthalene	0.0597	0.00201	"	0.167	<0.00109	35.7	30-130	26.7	30	
Benzo(k)fluoranthene	0.0897	0.00067	"	0.167	<0.000437	53.7	30-130	10.6	30	
Acenaphthene	0.0787	0.00067	"	0.167	<0.000304	47.1	30-130	2.3	30	
Anthracene	0.0805	0.00067	"	0.167	<0.000334	48.2	30-130	3.4	30	
Benzo(a)anthracene	0.0829	0.00067	"	0.167	<0.000493	49.6	30-130	5.8	30	
Benzo(a)pyrene	0.085	0.00067	"	0.167	<0.000468	50.8	30-130	3.1	30	
Benzo(b)fluoranthene	0.0844	0.00067	"	0.167	<0.000585	50.5	30-130	5.5	30	
<i>Surrogate: 2-Fluorobiphenyl</i>	46.2		"	0.333	172	46.2	33-115			
<i>Surrogate: Nitrobenzene-d5</i>	44.4		"	0.333	168	44.4	29-110			
<i>Surrogate: 4-Terphenyl-d14</i>	57.9		"	0.333	196	57.9	33-122			

MS (L 97249-MS-L651969)	Source: 97249			Prepared: 12/05/2022 Analyzed: 12/07/2022						
Benzo(k)fluoranthene	0.0998	0.00067	mg/Kg	0.167	<0.000437	59.7	30-130			
Acenaphthene	0.0769	0.00067	"	0.167	<0.000304	46	30-130			
Naphthalene	0.0728	0.00201	"	0.167	<0.00145	43.5	30-130			
Indeno(1,2,3-cd)pyrene	0.104	0.00067	"	0.167	<0.000627	62.2	30-130			
Fluorene	0.081	0.00067	"	0.167	<0.000286	48.5	30-130			
Fluoranthene	0.088	0.00067	"	0.167	<0.000394	52.6	30-130			
Dibenz(a,h)anthracene	0.118	0.00067	"	0.167	<0.000614	70.6	30-130			

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 8000 W 44th Ave
 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lockman #10-1014

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 L651969 - 3550B

MS (L 97249-MS-L651969)	Source: 97249			Prepared: 12/05/2022 Analyzed: 12/07/2022						
Chrysene	0.0867	0.00067	mg/Kg	0.167	<0.000624	51.9	30-130			
1-Methylnaphthalene	0.0781	0.00201	"	0.167	<0.00109	46.7	30-130			
Benzo(a)pyrene	0.0877	0.00067	"	0.167	<0.000468	52.5	30-130			
Anthracene	0.0833	0.00067	"	0.167	<0.000334	49.8	30-130			
Pyrene	0.0866	0.00067	"	0.167	<0.000643	51.8	30-130			
2-Methylnaphthalene	0.0733	0.00201	"	0.167	<0.00194	43.8	30-130			
Benzo(b)fluoranthene	0.0892	0.00067	"	0.167	<0.000585	53.4	30-130			
Benzo(a)anthracene	0.0879	0.00067	"	0.167	<0.000493	52.6	30-130			
Surrogate: Nitrobenzene-d5	40.8		"	0.333	168	40.8	29-110			
Surrogate: 4-Terphenyl-d14	60.6		"	0.333	196	60.6	33-122			
Surrogate: 2-Fluorobiphenyl	41.1		"	0.333	172	41.1	33-115			

LCS (LCS-L651969)	Prepared: 12/05/2022 Analyzed: 12/07/2022									
Chrysene	0.0996	0.00067	mg/Kg	0.167		59.6	30-130			
Dibenz(a,h)anthracene	0.142	0.00067	"	0.167		85	30-130			
Fluoranthene	0.124	0.00067	"	0.167		74.2	30-130			
Fluorene	0.0875	0.00067	"	0.167		52.3	30-130			
Indeno(1,2,3-cd)pyrene	0.124	0.00067	"	0.167		74.2	30-130			
Naphthalene	0.0863	0.00201	"	0.167		51.6	30-130			
Benzo(k)fluoranthene	0.0926	0.00067	"	0.167		55.4	30-130			
Pyrene	0.119	0.00067	"	0.167		71.2	30-130			
Benzo(a)pyrene	0.0935	0.00067	"	0.167		55.9	30-130			
Benzo(a)anthracene	0.102	0.00067	"	0.167		61	30-130			
Anthracene	0.0958	0.00067	"	0.167		57.3	30-130			
Acenaphthene	0.0923	0.00067	"	0.167		55.2	30-130			
2-Methylnaphthalene	0.0909	0.00201	"	0.167		54.4	30-130			
1-Methylnaphthalene	0.096	0.00201	"	0.167		57.4	30-130			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lockman #10-1014

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 L651969 - 3550B										
LCS (LCS-L651969)					Prepared: 12/05/2022 Analyzed: 12/07/2022					
Benzo(b)fluoranthene	0.0811	0.00067	mg/Kg	0.167		48.5	30-130			
Surrogate: Nitrobenzene-d5	54.9		"	0.333		54.9	29-110			
Surrogate: 4-Terphenyl-d14	85.5		"	0.333		85.5	33-122			
Surrogate: 2-Fluorobiphenyl	58.2		"	0.333		58.2	33-115			
LRB (LRB-L651969)					Prepared: 12/05/2022 Analyzed: 12/07/2022					
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	48.6		"	0.333		48.6	29-110			
Surrogate: 4-Terphenyl-d14	47.1		"	0.333		47.1	33-122			
Surrogate: 2-Fluorobiphenyl	51.9		"	0.333		51.9	33-115			

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Wheat Ridge CO 80033

Martin C Eckert III
Project Number: [none]
Project: Noble - Lockman #10-1014

Notes and Definitions

U Sample is Non-Detect.

J Estimated Value. Analyte below reported quantitation limit.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

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