

Wellhead Closure Checklist

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

Additional attachments (optional):		Pit Closure --		Tank Battery Closure --		Flowline Closure --		Partially Buried Vault Closure --	
Site Name & COGCC Facility Number: Watkins #12-2		Date: 11-28-22					Remediation Project #: 24990		
Associated Wells: 05-123-12822		Age of Site: years					Number of Photos Attached: 1		
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple)						40.325130 / -104.505930		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	05-123-12822								
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/no staining								
PID Readings	3.4	3.2	4.4	7.6	8.0				
Sample taken? Location/Sample ID#	WH-SS-01	WH-SS-02	WH-SS-03	WH-SS-04	WH-FS-01				
Photo Number(s)	See photo log								
Other observations regarding wellheads: Well casing cut/capped following assessment									
Summary									
Was impacted soil identified? <input checked="" type="radio"/> No Yes - less than 10 cubic yards Yes - more than 10 cubic yards									
Total number of samples field screened: 5				Total number of samples collected: 5					
Highest PID Reading: 8.0				Total number of samples submitted to lab for analysis: 1					
If more than 10 cubic yards of impacted soil were observed:									
Vertical extent:				Estimated spill volume:					
Lateral extent:				Volume of soil removed:					
N/A									
Is additional investigation required?									
Was groundwater encountered during the investigation? <input checked="" type="radio"/> No Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils									
Measured depth to groundwater:				Was remedial groundwater removal conducted? Yes No					
Date Groundwater was encountered:				Commencement date of removal:					
Sheen on groundwater? Yes No				Volume of groundwater removed prior to sampling:					
Free product observed? Yes No				Volume of groundwater removed post sampling:					
Total number of samples collected:				Total Volume of groundwater removed:					
Total number of samples submitted to lab for analysis:									

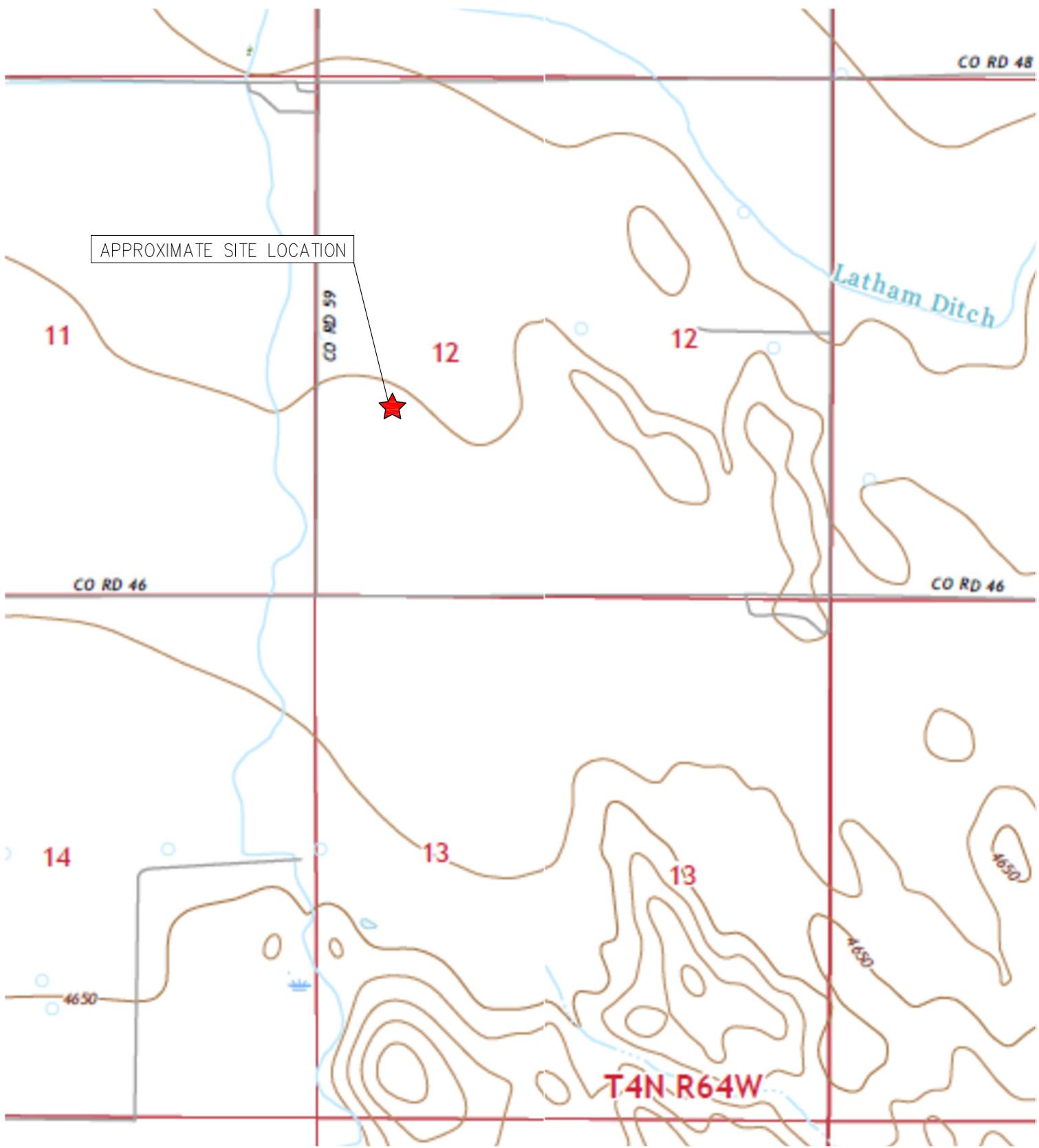


FIGURES

Figure 1: Topographic Site Location Map

Figure 2: Aerial Site Location Map

Figure 3: Soil Analytical Map



APPROXIMATE SITE LOCATION



TOPOGRAPHIC SITE LOCATION MAP
 WATKINS #12-2
 CLOSURE ASSESSMENT
 40.325130 / -104.505930
 NW¼ SW¼ SEC.12 T4N R64W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-12822
 REMEDIATION # 24990

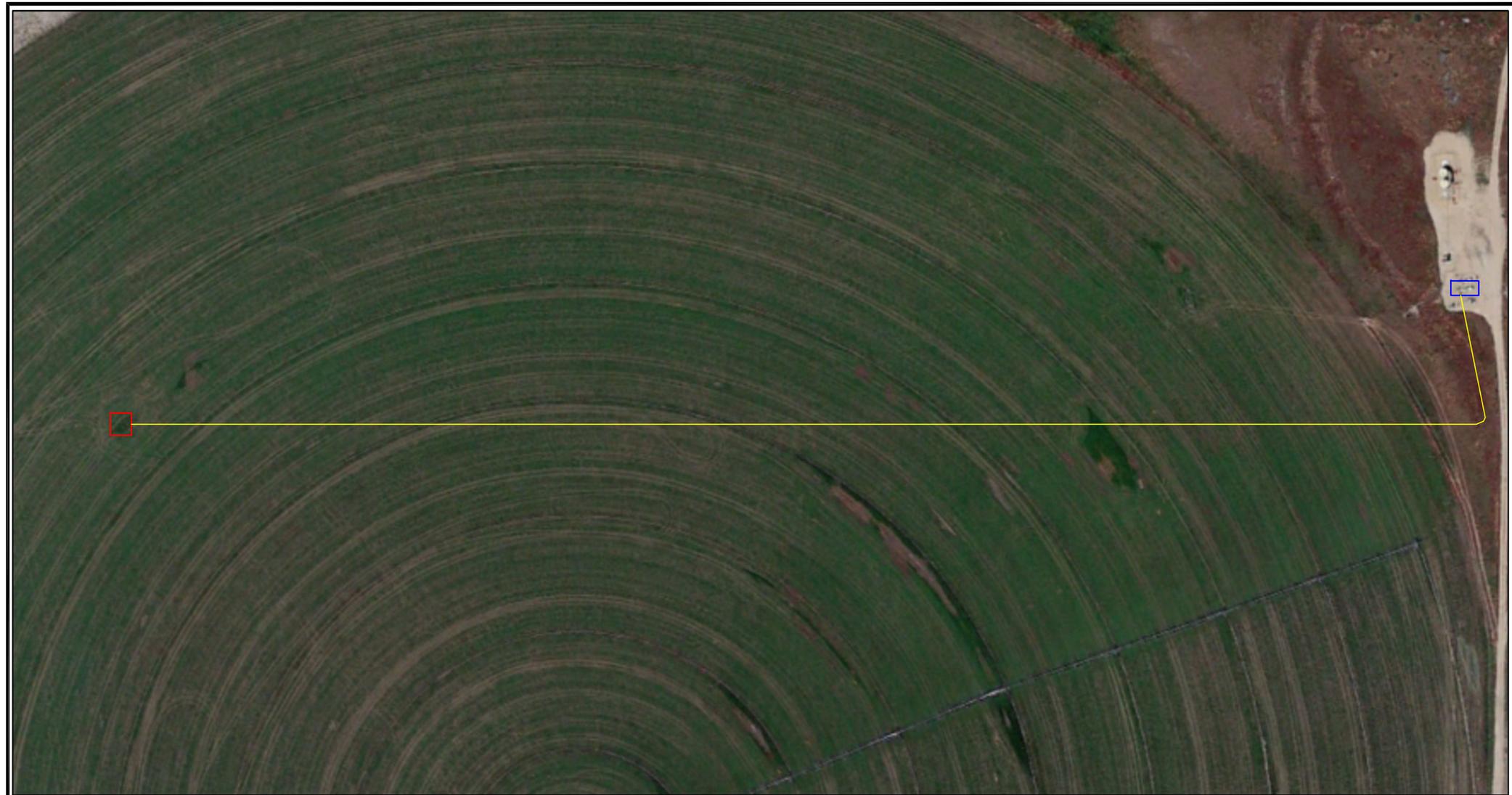


EAGLE
 ENVIRONMENTAL
 CONSULTING, LLC

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

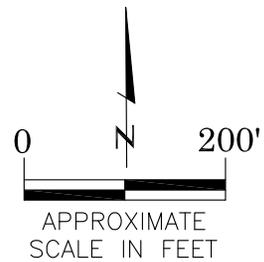
SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAPS,
 HARDIN & VALLEY VIEW SCHOOL, CO
 QUADRANGLES 2022

FIGURE NO. 1



LEGEND

- FORMER WATKINS #12-2 WELLHEAD (PLUGGED AND ABANDONED)
- ASSOCIATED SEPARATOR
- APPROXIMATE FLOWLINE LOCATION



AERIAL SITE LOCATION MAP
WATKINS #12-2
CLOSURE ASSESSMENT
40.325130 / -104.505930
NW¼ SW¼ SEC.12 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-12822
REMEDIAION # 24990

FIGURE NO.

2

DRAWN BY:

CT



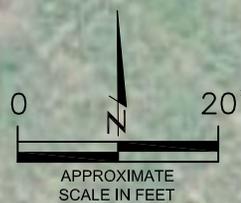
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ENVIRONMENTAL
CONSULTING, LLC

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



WH-FS-01@6'
11/28/22
6'
(BRL)

WH-SS-01
WH-SS-04
WH-SS-02
WH-FS-01
WH-SS-03



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
WATKINS #12-2
CLOSURE ASSESSMENT
40.325130 / -104.505930
NW¼ SW¼ SEC.12 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-12822
REMEDATION # 24990

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
WATKINS #12-2
CLOSURE ASSESSMENT
40.325130 / -104.505930
NW¼ SW¼ SEC.12 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-12822
REMEDIATION # 24990

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WH-SS-01 @ 5' (40.325134 / -104.505933)	11/28/22	5	3.4	N
WH-SS-02 @ 5' (40.325119 / -104.505915)	11/28/22	5	3.2	N
WH-SS-03 @ 5' (40.325104 / -104.505937)	11/28/22	5	4.4	N
WH-SS-04 @ 5' (40.325120 / -104.505952)	11/28/22	5	7.6	N
WH-FS-01 @ 6' (40.325118 / -104.505931)	11/28/22	6	8.0	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector				



TABLE 2
SOIL ANALYTICAL RESULTS SUMMARY
WATKINS #12-2
CLOSURE ASSESSMENT
40.325130 / -104.505930
NW¼ SW¼ SEC.12 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-12822
REMEDIATION # 24990

Sample Location				WH-FS-01 @ 6'
(Latitude / Longitude)				(40.325118 / -104.505931)
Sample Date				11/28/2022
Sample Depth				6'
PID Reading (ppm-v)				8.0
Regulatory Limits				
Chemical of Concern	Units	COGCC Table 915-1 RSSLs	COGCC 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	<0.00201
2-Methyl-naphthalene	mg/kg	24	0.019	<0.00201
Acenaphthene	mg/kg	360	0.55	<0.00067
Anthracene	mg/kg	1800	5.8	<0.00067
Benzo(a)-anthracene	mg/kg	1.1	0.011	<0.00067
Benzo(a)-pyrene	mg/kg	0.11	0.24	<0.00067
Benzo(b)-fluoranthene	mg/kg	1.1	0.3	<0.00067
Benzo(k)-fluoranthene	mg/kg	11	2.9	<0.00067
Chrysene	mg/kg	110	9	<0.00067
Dibenzo(a,h)-anthracene	mg/kg	0.11	0.096	<0.00067
Fluoranthene	mg/kg	240	8.9	<0.00067
Fluorene	mg/kg	240	0.54	<0.00067
Indeno(1,2,3-cd)-pyrene	mg/kg	1.1	0.98	<0.00067
Naphthalene	mg/kg	2	0.0038	<0.00201
Pyrene	mg/kg	180	1.3	<0.00067
Soil Suitability (Inorganics)				
Boron	mg/L	2	--	0.358
pH	standard unit	6-8.3	--	8.09
Sodium Adsorption Ratio (SAR)	--	<6	--	4.30
Specific Conductance (EC)	mmhos/cm	<4	--	2.30
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 BOLD exceed COGCC Table 915-1 Regulatory Limits.				



ATTACHMENT A

Photo Log

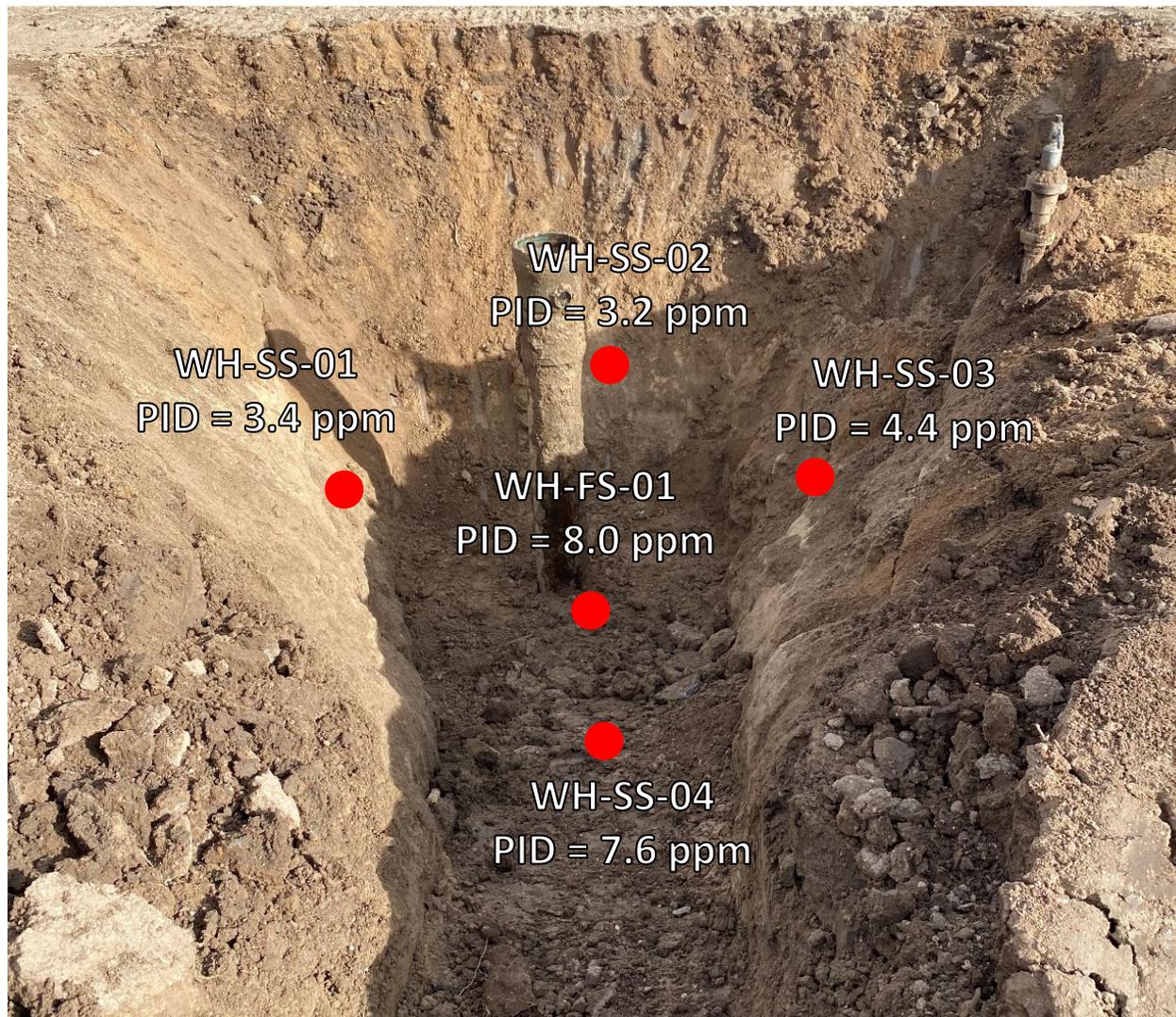
Watkins #12-2
API # 05-123-12822
Remediation # 24990

Closure Assessment

November 2022



Wellhead Excavation – 11/28/22



Looking east

No petroleum hydrocarbon staining or odor observed



ATTACHMENT B

Laboratory Analytical Report



December 05, 2022

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - Watkins #12-2

Project Number - [none]

Attached are your analytical results for Noble - Watkins #12-2 received by Origins Laboratory, Inc. November 28, 2022. This project is associated with Origins project number Y211596-01.

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 - Watkins #12-2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@6'	Y211596-01	Soil	November 28, 2022 13:00	11/28/2022 14:37

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 - Watkins #12-2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y211594

Client: Eagle Environmental
 Client Project ID: Watkins #12-2

Checklist Completed by: TSM / CHS

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

Date/time completed: 11/28/12

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

Cooler Number/Temperature: 1 / 12.5 °C / _____ °C / _____ °C (Describe) _____ °C

Thermometer ID: 1004

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

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

Reviewed by: JP (Project Manager)

11-29-12
 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 - Watkins #12-2

WH-FS-01@6'

11/28/2022 1:00:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y211596-01 (Soil)

Boron (DTPA Sorbitol)

Boron	0.358		0.0988	mg/L	1	B2K3005	11/30/2022	12/01/2022	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2K3001	11/30/2022	12/02/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	87.7 %		50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2K3017	11/30/2022	12/01/2022	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	101 %		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 - Watkins #12-2

WH-FS-01@6'

11/28/2022 1:00:00PM

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

Origins Laboratory, Inc.
 Y211596-01 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	89.1 %		70-130			B2K30 17	11/30/2022	12/01/2022	
Surrogate: 4-Bromofluorobenzene	90.5 %		70-130			"	"	"	

Metals by Saturated Paste by EPA 6010

Calcium	9.22		0.499	meq/L	10	[CALC]	11/30/2022	12/01/2022	
Magnesium	3.81		0.823	"	"	"	"	"	
Sodium	11.0		0.435	"	"	"	"	"	

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L651189	11/30/2022	12/01/2022	
2-Methylnaphthalene	ND	0.00194	0.00201	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	ND	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.



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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 - Watkins #12-2

WH-FS-01@6'

11/28/2022 1:00:00PM

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

Waypoint Analytical, LLC.
Y211596-01 (Soil)

PAH by 8270D SIM

Fluorene	ND	0.000286	0.00067	mg/Kg	1	L651189	11/30/2022	12/01/2022	
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"	
Naphthalene	ND	0.00145	0.00201	"	"	"	"	"	
Pyrene	ND	0.000643	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	47 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	54.5 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	46.1 %		29-110			"	"	"	

pH in Soil by 9045D

pH	8.09			pH Units	1	B2K3007	11/30/2022	12/01/2022	
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SAR by 20B Saturated Paste

SAR	4.30			SAR	1	B2K3006	11/30/2022	12/01/2022	
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	2.30		0.00500	mmhos/cm	1	B2K3007	11/30/2022	12/01/2022	
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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 - Watkins #12-2

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 B2K3001 - EPA 3580										
Blank (B2K3001-BLK1)										
					Prepared: 11/30/2022 Analyzed: 12/02/2022					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	24		"	24.9		96.5	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 - Watkins #12-2

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 B2K3001 - EPA 3580

LCS (B2K3001-BS1)

Prepared: 11/30/2022 Analyzed: 12/02/2022

Diesel (C10-C28)	952	50.0	mg/kg	1000		95.2	70-130			
Residual Range Organics (C28-C40)	931	200	"	1000		93.1	70-130			
Surrogate: o-Terphenyl	48		"	49.8		95.5	50-150			

Origins Laboratory, Inc.



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 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Watkins #12-2

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 B2K3001 - EPA 3580

Matrix Spike (B2K3001-MS1)	Source: Y211594-01			Prepared: 11/30/2022 Analyzed: 12/02/2022						
Diesel (C10-C28)	978	50.0	mg/kg	1000	ND	97.8	70-130			
Residual Range Organics (C28-C40)	954	200	"	1000	ND	95.4	70-130			
Surrogate: o-Terphenyl	45		"	49.8		89.9	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 - Watkins #12-2

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 B2K3001 - EPA 3580

Matrix Spike Dup (B2K3001-MSD1)	Source: Y211594-01		Prepared: 11/30/2022 Analyzed: 12/02/2022							
Diesel (C10-C28)	959	50.0	mg/kg	1000	ND	95.9	70-130	1.91	35	
Residual Range Organics (C28-C40)	959	200	"	1000	ND	95.9	70-130	0.548	35	
Surrogate: o-Terphenyl	45		"	49.8		89.6	50-150			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Watkins #12-2

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 B2K3017 - EPA 5030 (soil)

Blank (B2K3017-BLK1)

Prepared: 11/30/2022 Analyzed: 12/01/2022

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	0.12		"	0.125	99.3		70-130			
Surrogate: Toluene-d8	0.11		"	0.125	90.4		70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125	90.7		70-130			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Watkins #12-2

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 B2K3017 - EPA 5030 (soil)

LCS (B2K3017-BS1)

Prepared: 11/30/2022 Analyzed: 12/01/2022

1,2,4-Trimethylbenzene	0.108	0.00200	mg/kg	0.100		108	70-130			
1,3,5-Trimethylbenzene	0.107	0.00200	"	0.100		107	70-130			
Benzene	0.120	0.00200	"	0.100		120	70-130			
Ethylbenzene	0.105	0.00200	"	0.100		105	70-130			
Naphthalene	0.0980	0.00380	"	0.100		98.0	70-130			
Toluene	0.108	0.00200	"	0.100		108	70-130			
o-Xylene	0.101	0.00200	"	0.100		101	70-130			
m,p-Xylene	0.211	0.00400	"	0.200		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		100	70-130			
Surrogate: Toluene-d8	0.11		"	0.125		91.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		88.3	70-130			

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 Project Number: [none]
 Project: Noble - Watkins #12-2

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 B2K3017 - EPA 5030 (soil)

Matrix Spike (B2K3017-MS1)	Source: Y211595-01			Prepared: 11/30/2022 Analyzed: 12/01/2022						
1,2,4-Trimethylbenzene	0.105	0.00200	mg/kg	0.100	ND	105	70-130			
1,3,5-Trimethylbenzene	0.103	0.00200	"	0.100	ND	103	70-130			
Benzene	0.118	0.00200	"	0.100	ND	118	70-130			
Ethylbenzene	0.0992	0.00200	"	0.100	ND	99.2	70-130			
Naphthalene	0.0976	0.00380	"	0.100	ND	97.6	70-130			
Toluene	0.105	0.00200	"	0.100	ND	105	70-130			
o-Xylene	0.0967	0.00200	"	0.100	ND	96.7	70-130			
m,p-Xylene	0.198	0.00400	"	0.200	0.00172	98.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		104	70-130			
Surrogate: Toluene-d8	0.11		"	0.125		89.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		86.9	70-130			

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 Project: Noble - Watkins #12-2

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 B2K3017 - EPA 5030 (soil)

Matrix Spike Dup (B2K3017-MSD1)	Source: Y211595-01			Prepared: 11/30/2022 Analyzed: 12/01/2022						
1,2,4-Trimethylbenzene	0.103	0.00200	mg/kg	0.100	ND	103	70-130	2.02	20	
1,3,5-Trimethylbenzene	0.101	0.00200	"	0.100	ND	101	70-130	2.35	20	
Benzene	0.116	0.00200	"	0.100	ND	116	70-130	1.21	20	
Ethylbenzene	0.0973	0.00200	"	0.100	ND	97.3	70-130	1.95	20	
Naphthalene	0.0988	0.00380	"	0.100	ND	98.8	70-130	1.20	20	
Toluene	0.103	0.00200	"	0.100	ND	103	70-130	1.63	20	
o-Xylene	0.0955	0.00200	"	0.100	ND	95.5	70-130	1.27	20	
m,p-Xylene	0.193	0.00400	"	0.200	0.00172	95.7	70-130	2.63	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		102	70-130			
Surrogate: Toluene-d8	0.11		"	0.125		89.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		87.1	70-130			

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Eagle Environmental Consulting, Inc.
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 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Watkins #12-2

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 B2K3005 - DTPA Sorbitol Preparation

Blank (B2K3005-BLK1)

Prepared: 11/30/2022 Analyzed: 12/01/2022

Boron ND 0.100 mg/L

Duplicate (B2K3005-DUP1)

Source: Y211589-04

Prepared: 11/30/2022 Analyzed: 12/01/2022

Boron 1.01 0.100 mg/L 0.978 3.13 50

Batch B2K3006 - Saturated Paste Metals

Blank (B2K3006-BLK1)

Prepared: 11/30/2022 Analyzed: 12/01/2022

Calcium PPM ND 10.0 mg/L

SAR 0.00 SAR

Magnesium PPM ND 10.0 mg/L

Sodium PPM ND 10.0 "

Duplicate (B2K3006-DUP1)

Source: Y211589-05

Prepared: 11/30/2022 Analyzed: 12/01/2022

SAR 0.00 SAR 13.4 200 200

Calcium PPM 413 10.0 mg/L 408 1.29 50

Magnesium PPM 302 10.0 " 287 5.15 50

Sodium PPM 1580 10.0 " 1440 9.14 50

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 Project Number: [none]
 Project: Noble - Watkins #12-2

Saturated Paste - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B2K3007 - Saturated Paste pH/EC										
Blank (B2K3007-BLK1)					Prepared: 11/30/2022 Analyzed: 12/01/2022					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
Duplicate (B2K3007-DUP1)					Source: Y211589-05 Prepared: 11/30/2022 Analyzed: 12/01/2022					
Specific Conductance (EC)	8.81	0.00500	mmhos/cm		8.25			6.60	25	
pH	6.97		pH Units		7.52			7.59	25	

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Watkins #12-2

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 L651189 - 3550B

MSD (L 95412-MSD-L651189)		Source: 95412			Prepared: 11/30/2022 Analyzed: 12/01/2022					
2-Methylnaphthalene	0.0866	0.00201	mg/Kg	0.162	<0.00194	53.4	30-130	4.5	30	
Fluorene	0.0863	0.00067	"	0.162	<0.000286	53.2	30-130	3.8	30	
Pyrene	0.0888	0.00067	"	0.162	<0.000643	54.8	30-130	3.6	30	
Indeno(1,2,3-cd)pyrene	0.0955	0.00067	"	0.162	<0.000627	58.9	30-130	18.6	30	
Fluoranthene	0.0893	0.00067	"	0.162	<0.000394	55.1	30-130	4.5	30	
Dibenz(a,h)anthracene	0.114	0.00067	"	0.162	<0.000614	70.3	30-130	20.5	30	
Chrysene	0.0889	0.00067	"	0.162	<0.000624	54.8	30-130	10.6	30	
Naphthalene	0.089	0.00201	"	0.162	<0.00145	54.9	30-130	1.7	30	
1-Methylnaphthalene	0.0888	0.00201	"	0.162	<0.00109	54.8	30-130	3.9	30	
Benzo(k)fluoranthene	0.0853	0.00067	"	0.162	<0.000437	52.6	30-130	13.1	30	
Acenaphthene	0.086	0.00067	"	0.162	<0.000304	53	30-130	4.8	30	
Anthracene	0.0859	0.00067	"	0.162	<0.000334	53	30-130	5.5	30	
Benzo(a)anthracene	0.0895	0.00067	"	0.162	<0.000493	55.2	30-130	8.2	30	
Benzo(a)pyrene	0.0919	0.00067	"	0.162	<0.000468	56.7	30-130	2.3	30	
Benzo(b)fluoranthene	0.0825	0.00067	"	0.162	<0.000585	50.9	30-130	6.8	30	
Surrogate: 2-Fluorobiphenyl	49.5		"	0.325	165	49.5	33-115			
Surrogate: Nitrobenzene-d5	51		"	0.325	166	51	29-110			
Surrogate: 4-Terphenyl-d14	65.8		"	0.325	200	65.8	33-122			

MS (L 95412-MS-L651189)		Source: 95412			Prepared: 11/30/2022 Analyzed: 12/01/2022					
Benzo(k)fluoranthene	0.0973	0.00067	mg/Kg	0.167	<0.000437	58.2	30-130			
Acenaphthene	0.0903	0.00067	"	0.167	<0.000304	54	30-130			
Naphthalene	0.0906	0.00201	"	0.167	<0.00145	54.2	30-130			
Indeno(1,2,3-cd)pyrene	0.0792	0.00067	"	0.167	<0.000627	47.4	30-130			
Fluorene	0.0897	0.00067	"	0.167	<0.000286	53.7	30-130			
Fluoranthene	0.0935	0.00067	"	0.167	<0.000394	55.9	30-130			
Dibenz(a,h)anthracene	0.0928	0.00067	"	0.167	<0.000614	55.5	30-130			

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 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Watkins #12-2

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 L651189 - 3550B

MS (L 95412-MS-L651189)	Source: 95412			Prepared: 11/30/2022 Analyzed: 12/01/2022						
Chrysene	0.0989	0.00067	mg/Kg	0.167	<0.000624	59.2	30-130			
1-Methylnaphthalene	0.0924	0.00201	"	0.167	<0.00109	55.3	30-130			
Benzo(a)pyrene	0.0941	0.00067	"	0.167	<0.000468	56.3	30-130			
Anthracene	0.0908	0.00067	"	0.167	<0.000334	54.3	30-130			
Pyrene	0.0921	0.00067	"	0.167	<0.000643	55.1	30-130			
2-Methylnaphthalene	0.0906	0.00201	"	0.167	<0.00194	54.2	30-130			
Benzo(b)fluoranthene	0.077	0.00067	"	0.167	<0.000585	46.1	30-130			
Benzo(a)anthracene	0.0972	0.00067	"	0.167	<0.000493	58.2	30-130			
Surrogate: Nitrobenzene-d5	55.5		"	0.333	166	55.5	29-110			
Surrogate: 4-Terphenyl-d14	68.4		"	0.333	200	68.4	33-122			
Surrogate: 2-Fluorobiphenyl	56.7		"	0.333	165	56.7	33-115			

LCS (LCS-L651189)	Prepared: 11/30/2022 Analyzed: 12/01/2022									
Chrysene	0.0965	0.00067	mg/Kg	0.167		57.7	30-130			
Dibenz(a,h)anthracene	0.12	0.00067	"	0.167		71.8	30-130			
Fluoranthene	0.0961	0.00067	"	0.167		57.5	30-130			
Fluorene	0.0915	0.00067	"	0.167		54.7	30-130			
Indeno(1,2,3-cd)pyrene	0.104	0.00067	"	0.167		62.2	30-130			
Naphthalene	0.0941	0.00201	"	0.167		56.3	30-130			
Benzo(k)fluoranthene	0.0992	0.00067	"	0.167		59.4	30-130			
Pyrene	0.0942	0.00067	"	0.167		56.4	30-130			
Benzo(a)pyrene	0.0974	0.00067	"	0.167		58.3	30-130			
Benzo(a)anthracene	0.0963	0.00067	"	0.167		57.6	30-130			
Anthracene	0.0925	0.00067	"	0.167		55.3	30-130			
Acenaphthene	0.0925	0.00067	"	0.167		55.3	30-130			
2-Methylnaphthalene	0.0898	0.00201	"	0.167		53.7	30-130			
1-Methylnaphthalene	0.0936	0.00201	"	0.167		56	30-130			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Watkins #12-2

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 L651189 - 3550B

LCS (LCS-L651189)

Prepared: 11/30/2022 Analyzed: 12/01/2022

Benzo(b)fluoranthene	0.0852	0.00067	mg/Kg	0.167		51	30-130			
Surrogate: Nitrobenzene-d5	55.5		"	0.333		55.5	29-110			
Surrogate: 4-Terphenyl-d14	68.1		"	0.333		68.1	33-122			
Surrogate: 2-Fluorobiphenyl	58.2		"	0.333		58.2	33-115			

LRB (LRB-L651189)

Prepared: 11/30/2022 Analyzed: 12/01/2022

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	72.6		"	0.333		72.6	29-110			
Surrogate: 4-Terphenyl-d14	87.9		"	0.333		87.9	33-122			
Surrogate: 2-Fluorobiphenyl	75.3		"	0.333		75.3	33-115			

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Martin C Eckert III
Project Number: [none]
Project: Noble - Watkins #12-2

Notes and Definitions

U Sample is Non-Detect.

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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