

# Wellhead Closure Checklist

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

Additional attachments (optional): <u>      </u>		Pit Closure <u>      </u>		Tank Battery Closure <u>      </u>		Flowline Closure: <u>      </u>		Partially Buried Vault Closure <u>      </u>
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Site Name & COGCC Facility Number: Kissler K #21-32D	Date: 02/01/23	Remediation Project #: 25474
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Associated Wells: 05-123-27010	Age of Site: years	Number of Photos Attached: 1
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Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) 40.295443 / -104.789484	Estimated Facility Size (acres): <u>      </u>
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General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)

Good condition

USCS Soil Type: clayey SAND	Estimated Depth to Groundwater: ~8-12'
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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	05-123-27010				
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	0.5	0.3	0.5	0.7	1.2
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? 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
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Highest PID Reading: 1.2	Total number of samples submitted to lab for analysis: 1
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If more than 10 cubic yards of impacted soil were observed:

Vertical extent:	Estimated spill volume:
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Lateral extent:	Volume of soil removed:
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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
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Date Groundwater was encountered:	Commencement date of removal:
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Sheen on groundwater?      Yes      No	Volume of groundwater removed prior to sampling:
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Free product observed?      Yes      No	Volume of groundwater removed post sampling:
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Total number of samples collected:	Total Volume of groundwater removed:
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Total number of samples submitted to lab for analysis:	
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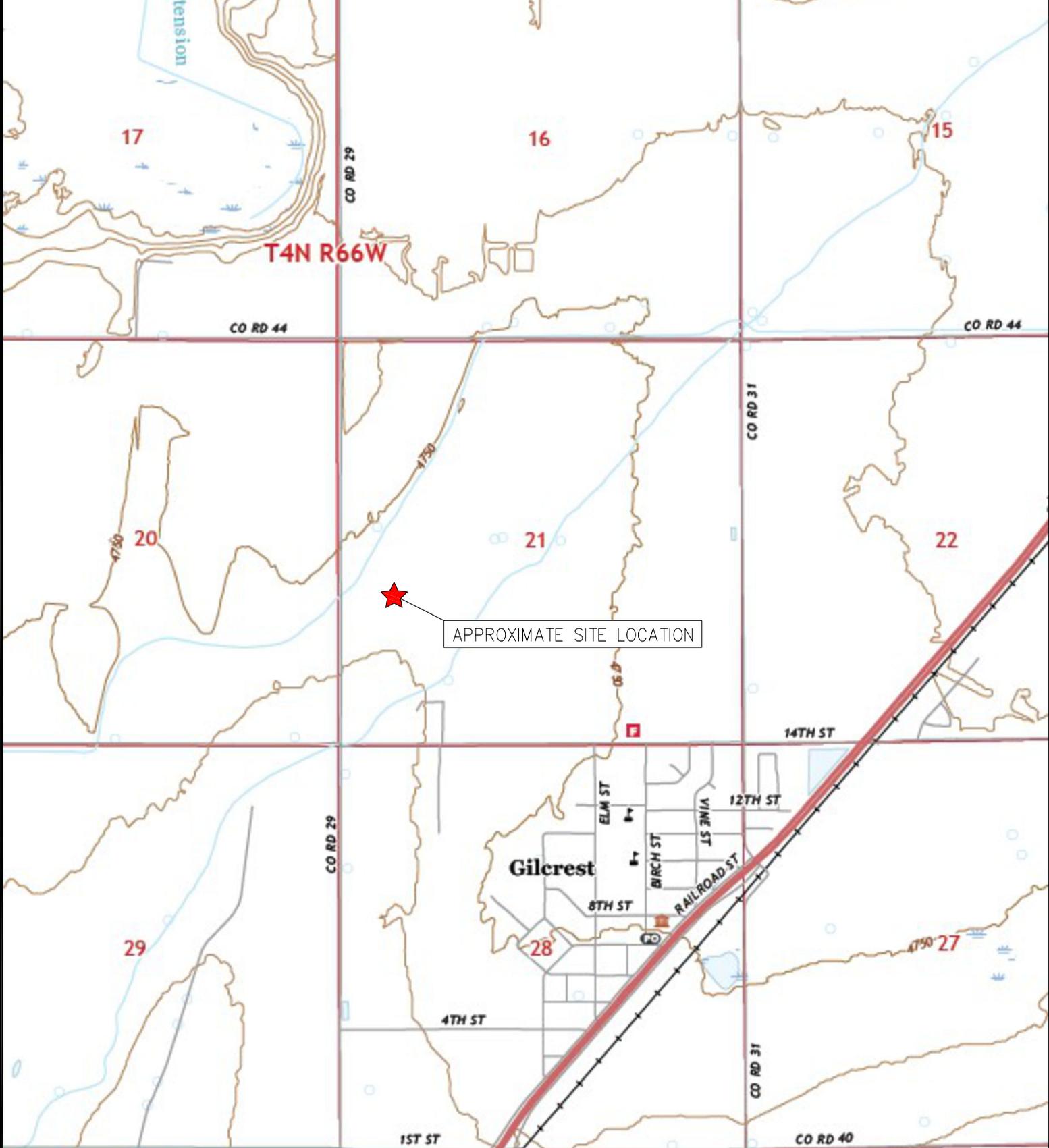


## **FIGURES**

**Figure 1: Topographic Site Location Map**

**Figure 2: Aerial Site Location Map**

**Figure 3: Soil Analytical Map**



TOPOGRAPHIC SITE LOCATION MAP  
 KISSLER K #21-32D  
 CLOSURE ASSESSMENT  
 40.295443 / -104.789484  
 NW¼ SW¼ SEC.21 T4N R66W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-27010  
 REMEDIATION # 25474



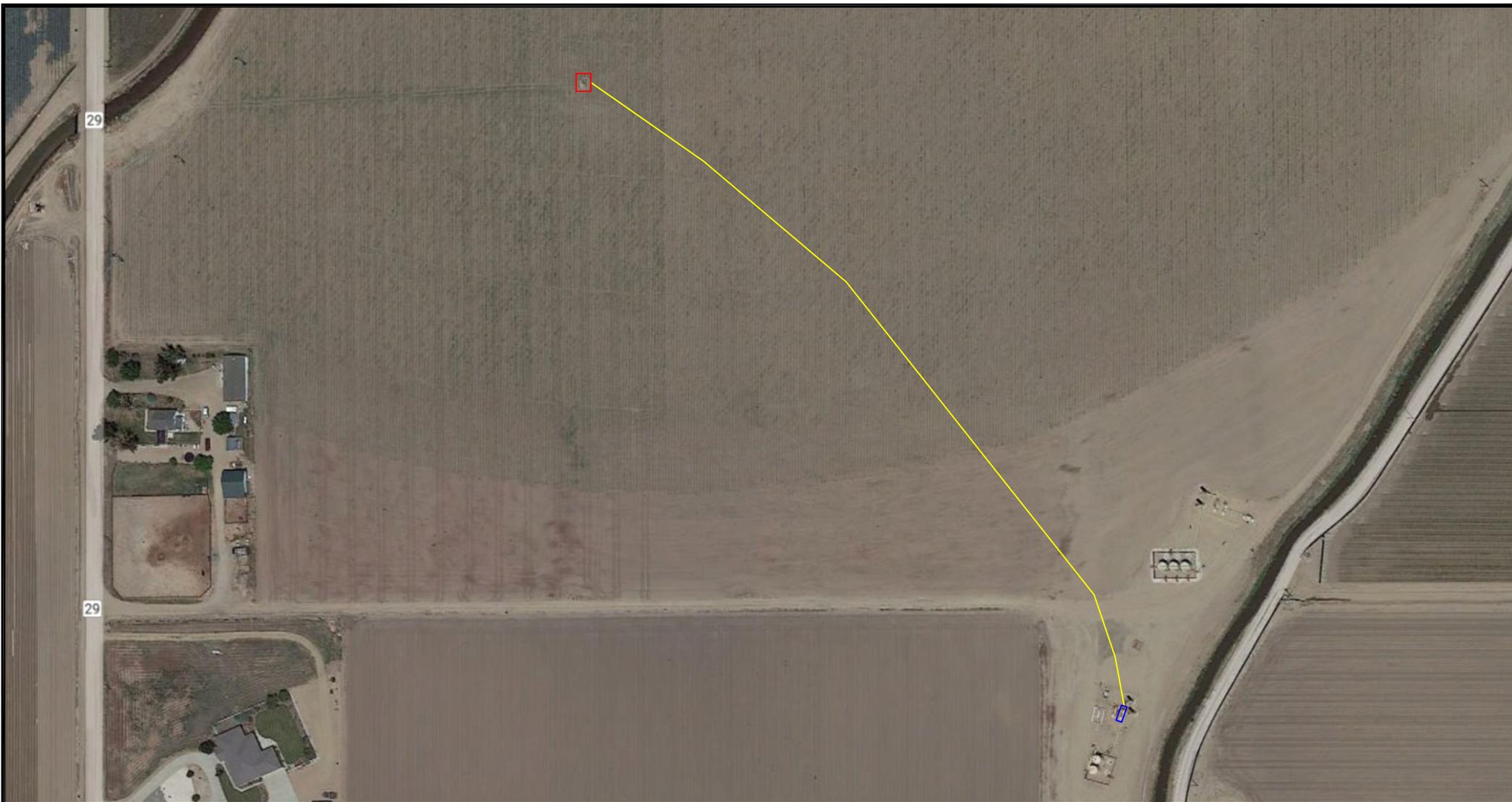
**EAGLE**  
 ENVIRONMENTAL  
 CONSULTING, LLC

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



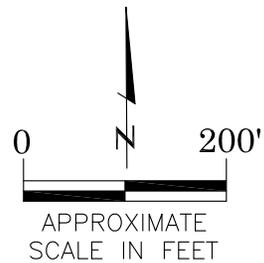
SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP,  
 MILLIKEN, CO QUADRANGLE 2022

FIGURE 1



**LEGEND**

- FORMER KISSLER K #21-32D WELLHEAD (PLUGGED AND ABANDONED)
- ASSOCIATED SEPARATOR
- APPROXIMATE FLOWLINE LOCATION



AERIAL SITE LOCATION MAP  
 KISSLER K #21-32D  
 CLOSURE ASSESSMENT  
 40.295443 / -104.789484  
 NW¼ SW¼ SEC.21 T4N R66W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-27010  
 REMEDIATION # 25474

FIGURE NO.

2

DRAWN BY:

EL



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**LEGEND**

- - - WELLHEAD ASSESSMENT BOUNDARIES
- **SS-02** APPROXIMATE LOCATION OF SOIL SAMPLES FIELD SCREENED, ONLY, WITH PHOTOIONIZATION DETECTOR
- 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  
 KISSLER K #21-32D  
 CLOSURE ASSESSMENT  
 40.295443 / -104.789484  
 NW¼ SW¼ SEC.21 T4N R66W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-27010  
 REMEDIATION # 25474

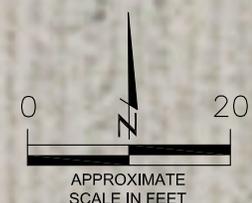


FIGURE NO.  
3

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**  
**KISSLER K #21-32D**  
**CLOSURE ASSESSMENT**  
**40.295443 / -104.789484**  
**NW¼ SW¼ SEC.21 T4N R66W 6PM**  
**WELD COUNTY, COLORADO**  
**API # 05-123-27010**  
**REMEDIATION # 25474**

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WH-SS-01 @ 5' (40.295455 / -104.789480)	02/01/23	5	0.5	N
WH-SS-02 @ 5' (40.295439 / -104.789462)	02/01/23	5	0.3	N
WH-SS-03 @ 5' (40.295423 / -104.789480)	02/01/23	5	0.5	N
WH-SS-04 @ 5' (40.295440 / -104.789498)	02/01/23	5	0.7	N
WH-FS-01 @ 6' (40.295440 / -104.789480)	02/01/23	6	1.2	Y

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



TABLE 2  
SOIL ANALYTICAL RESULTS SUMMARY  
KISSLER K #21-32D  
CLOSURE ASSESSMENT  
40.295443 / -104.789484  
NW¼ SW¼ SEC.21 T4N R66W 6PM  
WELD COUNTY, COLORADO  
API # 05-123-27010  
REMEDIATION # 25474

Sample Location		WH-FS-01 @ 6'		
(Latitude / Longitude)		(40.295440 / -104.789480)		
Sample Date		2/1/2023		
Sample Depth		6'		
PID Reading (ppm-v)		1.2		
Regulatory Limits				
Chemical of Concern	Units	COGCC Table 915-1 RSSLs	COGCC Table 915-1 GSSLs	
<b>VOCS</b>				
Benzene	mg/kg	1.2	0.0026	<0.00200
Toluene	mg/kg	490	0.69	<0.00200
Ethylbenzene	mg/kg	5.8	0.78	<0.00200
Total Xylenes	mg/kg	58	9.9	<0.00200
1,2,4-Trimethylbenzene	mg/kg	30	0.0081	<0.00200
1,3,5-Trimethylbenzene	mg/kg	27	0.0087	<0.00200
<b>TOTAL PETROLEUM HYDROCARBONS</b>				
TPH-GRO	mg/kg	500	--	<0.200
TPH-DRO	mg/kg	500	--	<25.0
TPH-RRO	mg/kg	500	--	<100
<b>POLYCYCLIC AROMATIC HYDROCARBONS</b>				
1-Methyl-naphthalene	mg/kg	18	0.006	<0.00201
2-Methyl-naphthalene	mg/kg	24	0.019	<0.00201
Acenaphthene	mg/kg	360	0.55	<0.00067
Anthracene	mg/kg	1800	5.8	<0.00067
Benzo(a)-anthracene	mg/kg	1.1	0.011	<0.00067
Benzo(a)-pyrene	mg/kg	0.11	0.24	<0.00067
Benzo(b)-fluoranthene	mg/kg	1.1	0.3	0.000731
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	0.000379
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	0.000783
<b>SOIL SUITABILITY (Inorganics)</b>				
Boron	mg/L	2	--	<0.0999
pH	standard unit	6-8.3	--	8.11
Sodium Adsorption Ratio (SAR)	--	<6	--	1.35
Specific Conductance (EC)	mmhos/cm	<4	--	0.270
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**

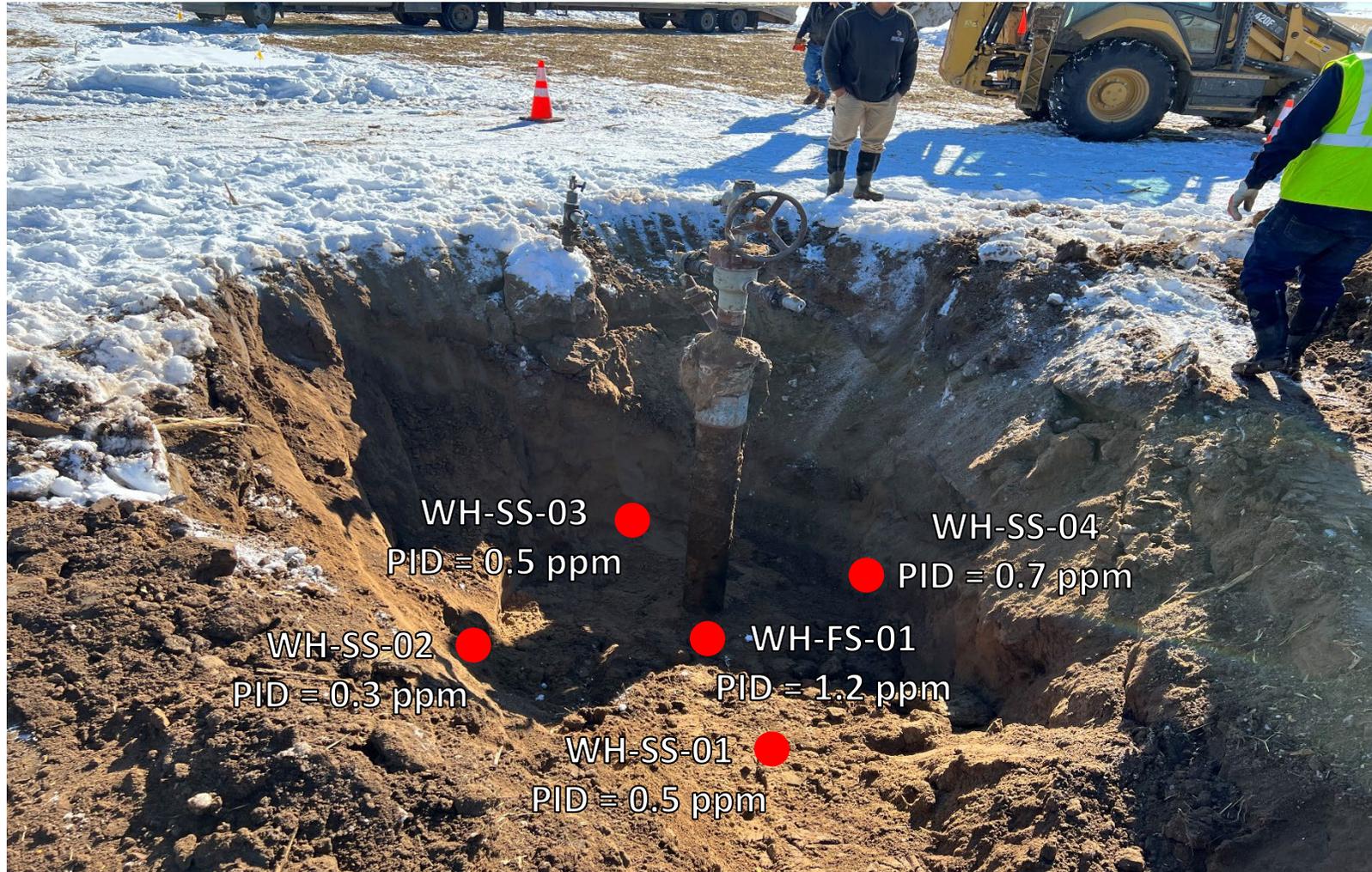
Kissler K #21-32D  
API # 05-123-27010  
Remediation # 25474

Closure Assessment

February 2023



# Wellhead Excavation – 02/01/23



Looking south - southwest

No petroleum hydrocarbon staining or odor observed



## **ATTACHMENT B**

### **Laboratory Analytical Report**



February 09, 2023

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - Kissler K #21-32D

Project Number - [none]

Attached are your analytical results for Noble - Kissler K #21-32D received by Origins Laboratory, Inc. February 01, 2023. This project is associated with Origins project number Y302023-01.

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 - Kissler K #21-32D

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@6'	Y302023-01	Soil	February 1, 2023 13:42	02/01/2023 16:30

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 - Kissler K #21-32D

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4202023

Client: Eagle

Checklist Completed by: CHS/DE

Client Project ID: Kissler K #21-32D

Date/time completed: 2/1/23

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

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

Airbill #: N/A

Cooler Number/Temperature: 1 13.9 °C 1 °C 1 °C (Describe) 1 °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> ?	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 <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		X		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	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 <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			X	
Additional Comments (if any):				

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

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 2/2/23

Origins Laboratory, Inc.

[Signature]

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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 - Kissler K #21-32D

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

**2/1/2023 1:42:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y302023-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	ND		0.0999	mg/L	1	B3B0202	02/02/2023	02/03/2023	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B3B0201	02/02/2023	02/02/2023	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	94.3 %		50-150			"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B3B0306	02/03/2023	02/03/2023	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Toluene	ND		0.00200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	109 %		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 - Kissler K #21-32D

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

**2/1/2023 1:42:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y302023-01 (Soil)**

**GBTEX+TMBs by 8260D**

Surrogate: Toluene-d8	97.4 %		70-130			B3B03 06	02/03/2023	02/03/2023	
Surrogate: 4-Bromofluorobenzene	92.7 %		70-130			"	"	"	

**Metals by Saturated Paste by EPA 6010**

Calcium	<b>0.882</b>		0.499	meq/L	10	[CALC]	02/02/2023	02/03/2023	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	<b>1.04</b>		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L662333	02/07/2023	02/07/2023	
2-Methylnaphthalene	ND	0.00194	0.00201	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	<b>0.000731</b>	<b>0.000585</b>	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 - Kissler K #21-32D

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

**2/1/2023 1:42:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y302023-01 (Soil)**

**PAH by 8270D SIM**

Fluorene	0.000379	0.000286	0.00067	mg/Kg	1	L662333	02/07/2023	02/07/2023	J
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"	
Naphthalene	ND	0.00145	0.00201	"	"	"	"	"	
Pyrene	0.000783	0.000643	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	58.1 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	70.5 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	54.5 %		29-110			"	"	"	

**pH in Soil by 9045D**

pH	8.11			pH Units	1	B3B0206	02/02/2023	02/03/2023	
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**SAR by 20B Saturated Paste**

SAR	1.35			SAR	1	B3B0204	02/02/2023	02/03/2023	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.270		0.00500	mmhos/cm	1	B3B0206	02/02/2023	02/03/2023	
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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 - Kissler K #21-32D

**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 B3B0201 - EPA 3580</b>										
<b>Blank (B3B0201-BLK1)</b>										
					Prepared: 02/02/2023 Analyzed: 02/02/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	22		"	24.9		87.3	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 - Kissler K #21-32D

**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 B3B0201 - EPA 3580**

**LCS (B3B0201-BS1)**

Prepared: 02/02/2023 Analyzed: 02/02/2023

Diesel (C10-C28)	981	50.0	mg/kg	1000		98.1	70-130			
Residual Range Organics (C28-C40)	833	200	"	1000		83.3	70-130			
Surrogate: o-Terphenyl	47		"	49.8		94.4	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 - Kissler K #21-32D

**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 B3B0201 - EPA 3580

Matrix Spike (B3B0201-MS1)	Source: Y302022-01			Prepared: 02/02/2023 Analyzed: 02/02/2023						
Diesel (C10-C28)	1030	50.0	mg/kg	1000	ND	103	70-130			
Residual Range Organics (C28-C40)	864	200	"	1000	ND	86.4	70-130			
Surrogate: o-Terphenyl	46		"	49.8		91.5	50-150			

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 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Kissler K #21-32D

**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 B3B0201 - EPA 3580**

<b>Matrix Spike Dup (B3B0201-MSD1)</b>	<b>Source: Y302022-01</b>			<b>Prepared: 02/02/2023 Analyzed: 02/02/2023</b>						
Diesel (C10-C28)	990	50.0	mg/kg	1000	ND	99.0	70-130	3.50	35	
Residual Range Organics (C28-C40)	828	200	"	1000	ND	82.8	70-130	4.34	35	
Surrogate: o-Terphenyl	51		"	49.8		102	50-150			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Kissler K #21-32D

**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 B3B0306 - EPA 5030 (soil)**

**Blank (B3B0306-BLK1)**

Prepared: 02/03/2023 Analyzed: 02/03/2023

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125	113		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	94.9		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	93.1		70-130			

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 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Kissler K #21-32D

**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 B3B0306 - EPA 5030 (soil)

**LCS (B3B0306-BS1)**

Prepared: 02/03/2023 Analyzed: 02/03/2023

1,2,4-Trimethylbenzene	0.107	0.00200	mg/kg	0.100		107	70-130			
1,3,5-Trimethylbenzene	0.112	0.00200	"	0.100		112	70-130			
Benzene	0.109	0.00200	"	0.100		109	70-130			
Ethylbenzene	0.115	0.00200	"	0.100		115	70-130			
Naphthalene	0.117	0.00380	"	0.100		117	70-130			
Toluene	0.113	0.00200	"	0.100		113	70-130			
o-Xylene	0.107	0.00200	"	0.100		107	70-130			
m,p-Xylene	0.237	0.00400	"	0.200		118	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		95.0	70-130			

Origins Laboratory, Inc.



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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Kissler K #21-32D

**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 B3B0306 - EPA 5030 (soil)

Matrix Spike (B3B0306-MS1)	Source: Y302005-01			Prepared: 02/03/2023 Analyzed: 02/03/2023						
1,2,4-Trimethylbenzene	0.490	0.00200	mg/kg	0.100	0.193	297	70-130			QM-02
1,3,5-Trimethylbenzene	0.241	0.00200	"	0.100	0.0545	187	70-130			QM-02
Benzene	0.145	0.00200	"	0.100	0.00874	136	70-130			QM-02
Ethylbenzene	0.184	0.00200	"	0.100	0.0207	163	70-130			QM-02
Naphthalene	0.234	0.00380	"	0.100	0.0605	173	70-130			QM-02
Toluene	0.133	0.00200	"	0.100	ND	133	70-130			QM-02
o-Xylene	0.209	0.00200	"	0.100	0.0383	171	70-130			QM-02
m,p-Xylene	0.529	0.00400	"	0.200	0.116	207	70-130			QM-02
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		109	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Kissler K #21-32D

**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 B3B0306 - EPA 5030 (soil)

Matrix Spike Dup (B3B0306-MSD1)	Source: Y302005-01			Prepared: 02/03/2023 Analyzed: 02/03/2023						
1,2,4-Trimethylbenzene	0.384	0.00200	mg/kg	0.100	0.193	191	70-130	24.2	20	QM-02
1,3,5-Trimethylbenzene	0.185	0.00200	"	0.100	0.0545	130	70-130	26.4	20	QR-05
Benzene	0.102	0.00200	"	0.100	0.00874	93.2	70-130	34.5	20	QR-05
Ethylbenzene	0.132	0.00200	"	0.100	0.0207	111	70-130	33.1	20	QR-05
Naphthalene	0.187	0.00380	"	0.100	0.0605	127	70-130	22.1	20	QR-05
Toluene	0.0971	0.00200	"	0.100	ND	97.1	70-130	31.2	20	QR-05
o-Xylene	0.154	0.00200	"	0.100	0.0383	115	70-130	30.7	20	QR-05
m,p-Xylene	0.383	0.00400	"	0.200	0.116	133	70-130	32.2	20	QM-02
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		110	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.4	70-130			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Kissler K #21-32D

**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 B3B0202 - DTPA Sorbitol Preparation**

**Blank (B3B0202-BLK1)**

Prepared: 02/02/2023 Analyzed: 02/03/2023

Boron ND 0.100 mg/L

**Duplicate (B3B0202-DUP1)**

Source: Y301497-01

Prepared: 02/02/2023 Analyzed: 02/03/2023

Boron 0.936 0.0999 mg/L 0.800 15.7 50

**Batch B3B0204 - Saturated Paste Metals**

**Blank (B3B0204-BLK1)**

Prepared: 02/02/2023 Analyzed: 02/03/2023

Calcium PPM ND 10.0 mg/L

SAR 0.00 SAR

Magnesium PPM ND 10.0 mg/L

Sodium PPM ND 10.0 "

**Duplicate (B3B0204-DUP1)**

Source: Y301495-04

Prepared: 02/02/2023 Analyzed: 02/03/2023

SAR 0.00 SAR 0.402 200 200

Calcium PPM 549 10.0 mg/L 472 15.1 50

Magnesium PPM 77.9 10.0 " 78.8 1.19 50

Sodium PPM 36.8 10.0 " 35.8 2.65 50

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Kissler K #21-32D

**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 B3B0206 - Saturated Paste pH/EC</b>										
<b>Blank (B3B0206-BLK1)</b>					Prepared: 02/02/2023 Analyzed: 02/03/2023					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
<b>Duplicate (B3B0206-DUP1)</b>					<b>Source: Y301495-04</b> Prepared: 02/02/2023 Analyzed: 02/03/2023					
Specific Conductance (EC)	2.30	0.00500	mmhos/cm		2.11		8.28		25	
pH	7.63		pH Units		7.82		2.46		25	

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Kissler K #21-32D

**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 L662333 - 3550B**

<b>MSD (L 82717-MSD-L662333)</b>	<b>Source: Y302023-01</b>			<b>Prepared: 02/07/2023 Analyzed: 02/07/2023</b>						
2-Methylnaphthalene	0.094	0.00201	mg/Kg	0.164	<0.00194	57.3	30-130	1.6	30	
Fluorene	0.0989	0.00067	"	0.164	0.000379	60	30-130	0.5	30	
Pyrene	0.114	0.00067	"	0.164	0.000783	69	30-130	3.4	30	
Indeno(1,2,3-cd)pyrene	0.11	0.00067	"	0.164	<0.000627	67	30-130	11.9	30	
Fluoranthene	0.119	0.00067	"	0.164	<0.000394	72.5	30-130	6.5	30	
Dibenz(a,h)anthracene	0.121	0.00067	"	0.164	<0.000614	73.7	30-130	13.8	30	
Chrysene	0.105	0.00067	"	0.164	<0.000624	64	30-130	6.4	30	
Naphthalene	0.0961	0.00201	"	0.164	<0.00145	58.5	30-130	1.2	30	
1-Methylnaphthalene	0.103	0.00201	"	0.164	<0.00109	62.8	30-130	1.9	30	
Benzo(k)fluoranthene	0.134	0.00067	"	0.164	<0.000437	81.7	30-130	4.3	30	
Acenaphthene	0.102	0.00067	"	0.164	<0.000304	62.1	30-130	1.9	30	
Anthracene	0.0965	0.00067	"	0.164	<0.000334	58.8	30-130	0.3	30	
Benzo(a)anthracene	0.112	0.00067	"	0.164	<0.000493	68.2	30-130	2.6	30	
Benzo(a)pyrene	0.117	0.00067	"	0.164	<0.000468	71.3	30-130	1.6	30	
Benzo(b)fluoranthene	0.106	0.00067	"	0.164	0.000731	64.1	30-130	7.2	30	
<i>Surrogate: 2-Fluorobiphenyl</i>	53		"	0.328	193	53	33-115			
<i>Surrogate: Nitrobenzene-d5</i>	47.2		"	0.328	181	47.2	29-110			
<i>Surrogate: 4-Terphenyl-d14</i>	65.5		"	0.328	234	65.5	33-122			

<b>MS (L 82717-MS-L662333)</b>	<b>Source: Y302023-01</b>			<b>Prepared: 02/07/2023 Analyzed: 02/07/2023</b>						
Benzo(k)fluoranthene	0.14	0.00067	mg/Kg	0.165	<0.000437	84.8	30-130			
Acenaphthene	0.1	0.00067	"	0.165	<0.000304	60.6	30-130			
Naphthalene	0.0949	0.00201	"	0.165	<0.00145	57.5	30-130			
Indeno(1,2,3-cd)pyrene	0.124	0.00067	"	0.165	<0.000627	75.1	30-130			
Fluorene	0.0984	0.00067	"	0.165	0.000379	59.4	30-130			
Fluoranthene	0.127	0.00067	"	0.165	<0.000394	76.9	30-130			
Dibenz(a,h)anthracene	0.139	0.00067	"	0.165	<0.000614	84.2	30-130			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Kissler K #21-32D

**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 L662333 - 3550B**

MS (L 82717-MS-L662333)	Source: Y302023-01			Prepared: 02/07/2023 Analyzed: 02/07/2023						
Chrysene	0.112	0.00067	mg/Kg	0.165	<0.000624	67.8	30-130			
1-Methylnaphthalene	0.101	0.00201	"	0.165	<0.00109	61.2	30-130			
Benzo(a)pyrene	0.119	0.00067	"	0.165	<0.000468	72.1	30-130			
Anthracene	0.0968	0.00067	"	0.165	<0.000334	58.6	30-130			
Pyrene	0.118	0.00067	"	0.165	0.000783	71	30-130			
2-Methylnaphthalene	0.0925	0.00201	"	0.165	<0.00194	56	30-130			
Benzo(b)fluoranthene	0.114	0.00067	"	0.165	0.000731	68.6	30-130			
Benzo(a)anthracene	0.115	0.00067	"	0.165	<0.000493	69.6	30-130			
Surrogate: Nitrobenzene-d5	46		"	0.33	181	46	29-110			
Surrogate: 4-Terphenyl-d14	70		"	0.33	234	70	33-122			
Surrogate: 2-Fluorobiphenyl	50.6		"	0.33	193	50.6	33-115			

LCS (LCS-L662333)	Prepared: 02/07/2023 Analyzed: 02/07/2023									
Chrysene	0.129	0.00067	mg/Kg	0.167		77.2	30-130			
Dibenz(a,h)anthracene	0.135	0.00067	"	0.167		80.8	30-130			
Fluoranthene	0.142	0.00067	"	0.167		85	30-130			
Fluorene	0.112	0.00067	"	0.167		67	30-130			
Indeno(1,2,3-cd)pyrene	0.123	0.00067	"	0.167		73.6	30-130			
Naphthalene	0.107	0.00201	"	0.167		64	30-130			
Benzo(k)fluoranthene	0.157	0.00067	"	0.167		94	30-130			
Pyrene	0.133	0.00067	"	0.167		79.6	30-130			
Benzo(a)pyrene	0.137	0.00067	"	0.167		82	30-130			
Benzo(a)anthracene	0.137	0.00067	"	0.167		82	30-130			
Anthracene	0.112	0.00067	"	0.167		67	30-130			
Acenaphthene	0.114	0.00067	"	0.167		68.2	30-130			
2-Methylnaphthalene	0.101	0.00201	"	0.167		60.4	30-130			
1-Methylnaphthalene	0.119	0.00201	"	0.167		71.2	30-130			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Kissler K #21-32D

**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 L662333 - 3550B**

**LCS (LCS-L662333)**

Prepared: 02/07/2023 Analyzed: 02/07/2023

Benzo(b)fluoranthene	0.128	0.00067	mg/Kg	0.167		76.6	30-130			
Surrogate: Nitrobenzene-d5	52.5		"	0.333		52.5	29-110			
Surrogate: 4-Terphenyl-d14	82.5		"	0.333		82.5	33-122			
Surrogate: 2-Fluorobiphenyl	59.7		"	0.333		59.7	33-115			

**LRB (LRB-L662333)**

Prepared: 02/07/2023 Analyzed: 02/07/2023

Chrysene	ND	0.00067	mg/Kg				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Naphthalene	ND	0.00201	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00201	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	51.6		"	0.333		51.6	29-110			
Surrogate: 4-Terphenyl-d14	74.7		"	0.333		74.7	33-122			
Surrogate: 2-Fluorobiphenyl	55.5		"	0.333		55.5	33-115			

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8000 W 44th Ave  
Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Kissler K #21-32D

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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.

QM-02 The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.

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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