

# 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 11/15/23	Partially Buried Vault Closure <u>        </u>
Site Name & COGCC Facility Number: Sitzman #27-8		Date: 05/08/23				Remediation Project #: 26855	
Associated Wells: 05-123-17679		Age of Site: Years				Number of Photos Attached: 2	
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple)						Estimated Facility Size (acres):	
40.285294 / -104.529716							
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)							
Good Condition							
USCS Soil Type: Clayey SAND				Estimated Depth to Groundwater: Approx. 20-30'			
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	05-123-17679						
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	2.2	2.7	3.4	2.9	4.1		
Sample taken? Location/Sample ID#	WH-SS-01	WH-SS-02	WH-SS-03	WH-SS-04	WH-FS-01		
Photo Number(s)	See photolog						
Other observations regarding wellheads:							
Well casing cut/capped following assessment.							
Summary							
Was impacted soil identified?							
<input checked="" type="checkbox"/> No		Yes - less than 10 cubic yards			Yes - more than 10 cubic yards		
Total number of samples field screened: 5				Total number of samples collected: 5			
Highest PID Reading: 4.1				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				Volume of groundwater removed prior to sampling:			
Free product observed? Yes No				N/A			
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:							

## Flowline Closure Checklist

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

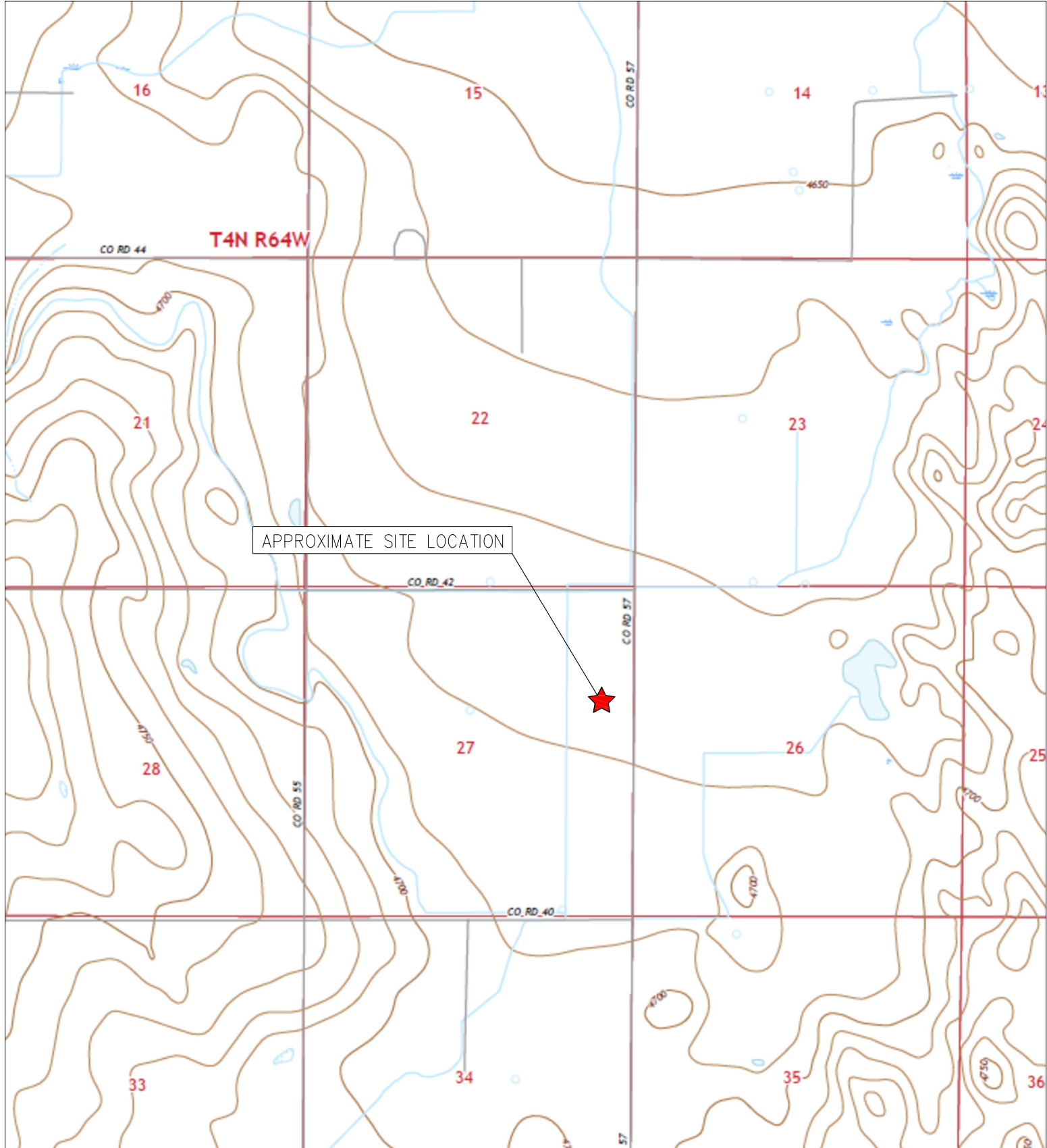
Additional Attachments:	Tank Battery Closure <input type="checkbox"/>	Wellhead Closure 05/08/23	Pit Closure <input type="checkbox"/>	Partially Buried Vault Closure <input type="checkbox"/>
Site Name & COGCC Facility Number: Sitzman #27-8		Date: 11/15/23		Remediation Project #: 26855
Associated Wells: 05-123-17679		Age of Site: Years		Number of Photos Attached: 3
Starting point: (GPS coordinates and descriptions) 40.285296 / -104.529732 at well				
End point: (GPS coordinates and descriptions) 40.285734 / -104.529423 at separator				
USCS Soil Type: Clayey SAND			Estimated Depth to Groundwater: Approx. 20-30'	
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.				
Flowlines				
Flowline type	O, G, W			
Depth	Approx. 4'			
Age	Years			
Length	Approx. 260'			
Construction Material	Steel			
Were flowlines pulled?	Yes - Flowline removed with partial abandonment.			
Visual Integrity of lines	Good - Per integrity test.			
Visual impacts if trenched	None observed.			
PID Readings if trenched	1.5	1.8	1.6	
Sample taken? Location/Sample ID#	FL-SS-01	FL-SS-02	FL-SS-03	
Photo Number(s)	See photolog			
Other observations regarding on location flowlines: Flowline removed with partial abandonment. Pt. A (at wellhead) assessed, change of direction (N to NE) assessed.				
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: 3			Total number of samples collected: 3	
Highest PID Reading: 1.6			Total number of samples submitted to lab for analysis: 1	
If more than 10 cubic yards of impacted soil were observed:				
Vertical extent:			Estimated spill volume:	
Lateral extent: N/A			Volume of soil removed:	
Is additional investigation required?				
Was groundwater encountered during the investigation? <input checked="" type="checkbox"/> No      Yes - not impacted or in contact with impacted soils      Yes - groundwater impacted and/or in contact with impacted soils				
Measured depth to groundwater:			Was remedial groundwater removal conducted? Yes      No	
Date Groundwater was encountered:			Commencement date of removal:	
Sheen on groundwater? Yes      No			Volume of groundwater removed prior to sampling:	
Free product observed? Yes      No			Volume of groundwater removed post sampling:	
Total number of samples collected:			Total Volume of groundwater removed:	
Total number of samples submitted to lab for analysis:				

## **FIGURES**

**Figure 1: Topographic Site Location Map**

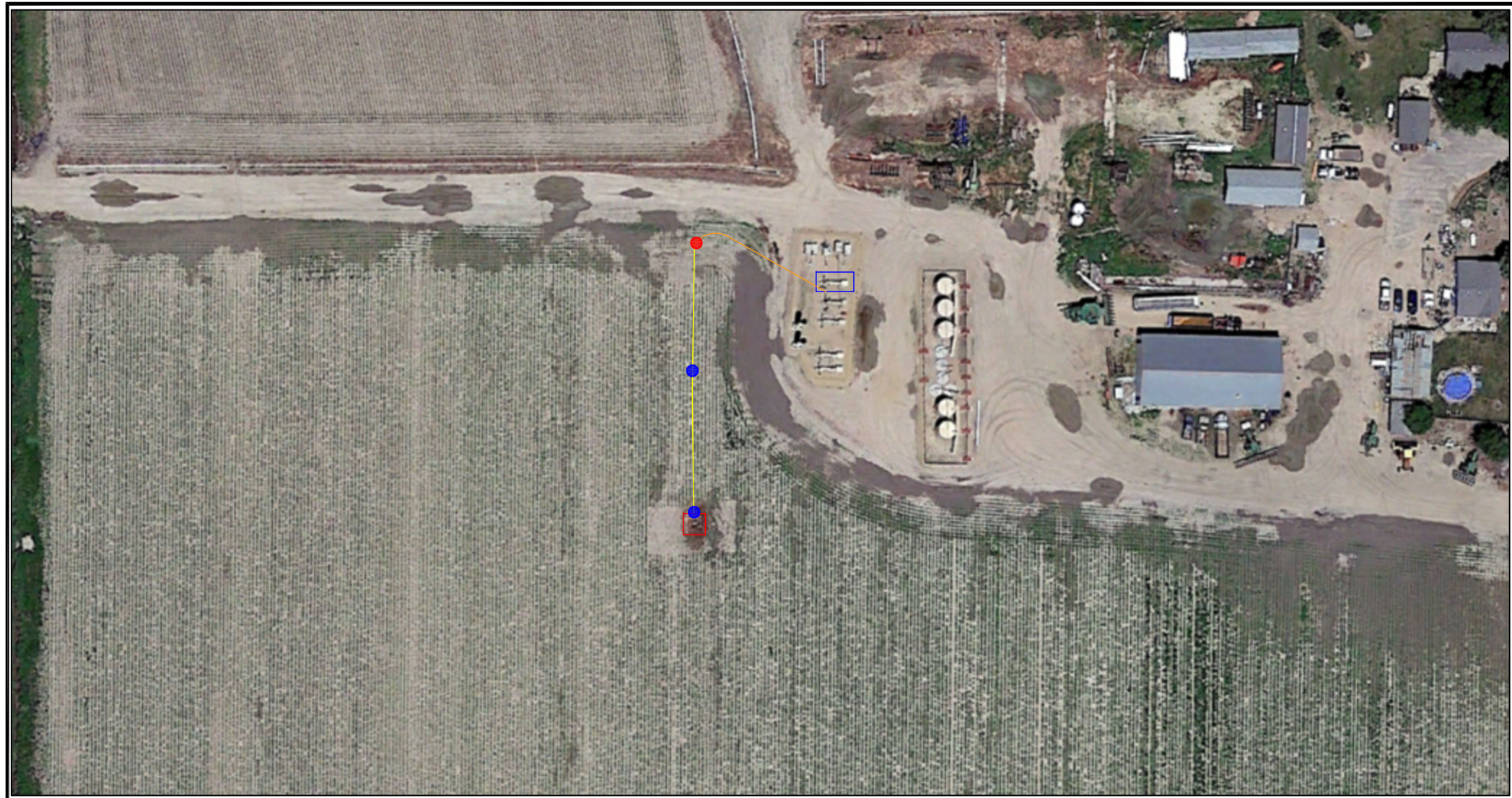
**Figure 2: Aerial Site Location Map**

**Figure 3: Soil Analytical Map**



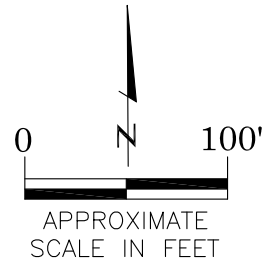
TOPOGRAPHIC SITE LOCATION MAP  
 SITZMAN #27-8  
 CLOSURE ASSESSMENT  
 40.285294 / -104.529716  
 SE¼ NE¼ SEC.27 T4N R64W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-17679  
 REMEDIATION # 26855





LEGEND

- FORMER SITZMAN #27-8 WELLHEAD (PLUGGED AND ABANDONED)
- ASSOCIATED SEPARATOR
- APPROXIMATE FLOWLINE LOCATION (REMOVED)
- APPROXIMATE FLOWLINE LOCATION (ABANDONED IN PLACE)
- APPROXIMATE FLOWLINE SAMPLE LOCATIONS - FIELD SCREENED
- APPROXIMATE FLOWLINE SAMPLE LOCATIONS - LAB SUBMITTED



AERIAL SITE LOCATION MAP  
 SITZMAN #27-8  
 CLOSURE ASSESSMENT  
 40.285294 / -104.529716  
 SE¼ NE¼ SEC.27 T4N R64W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-17679  
 REMEDIATION # 26855

FIGURE NO.  
2

DRAWN BY:  
CT

**LEGEND**

- - - - - WELLHEAD ASSESSMENT BOUNDARIES
- APPROXIMATE FLOWLINE LOCATION (REMOVED)
- APPROXIMATE FLOWLINE LOCATION (ABANDONED IN PLACE)
- 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 ECMC TABLE 915-1 REGULATORY LIMITS.

ECMC = ENERGY & CARBON MANAGEMENT COMMISSION

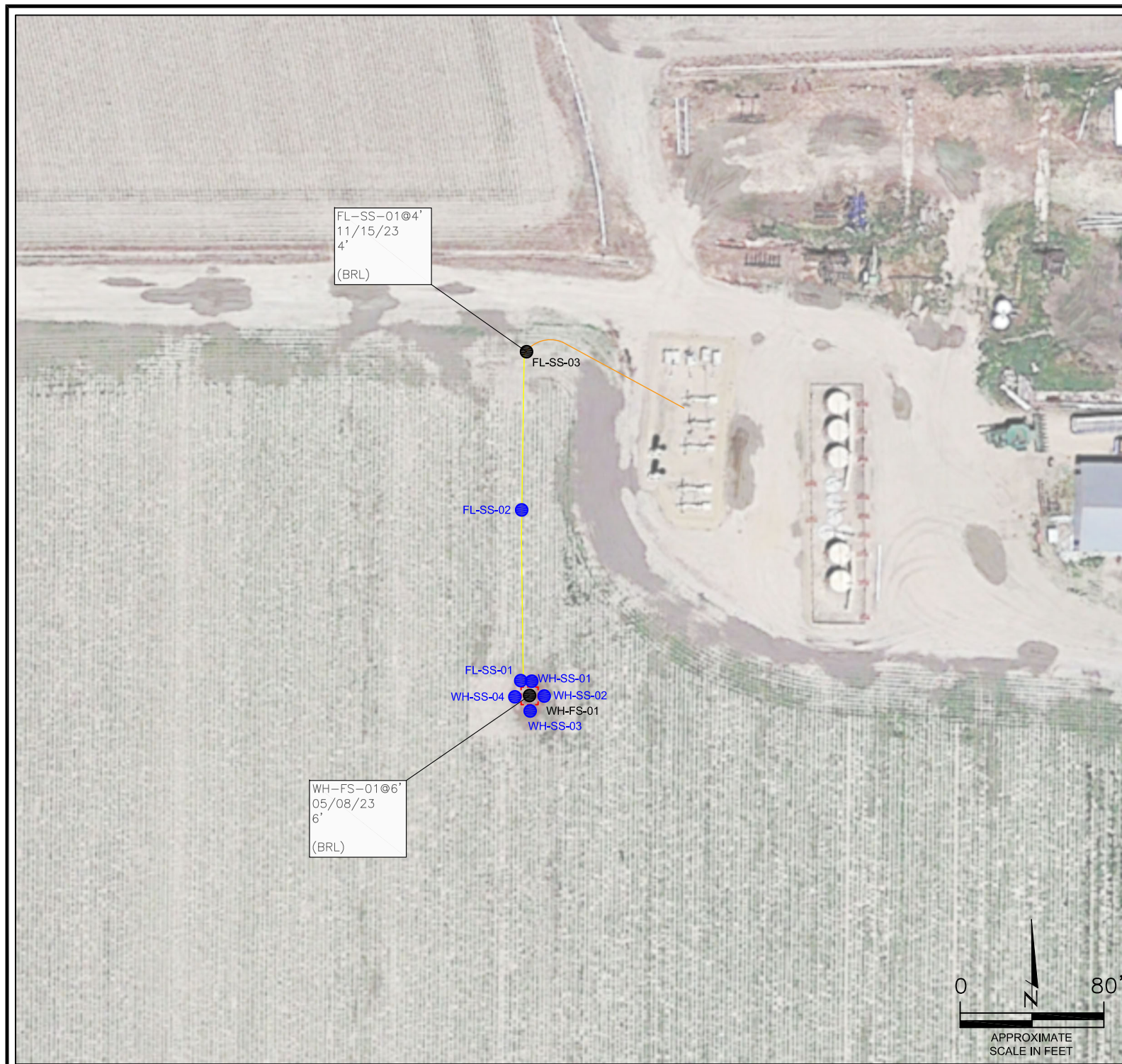
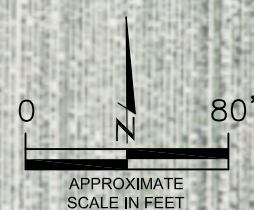
SOIL ANALYTICAL MAP  
 SITZMAN #27-8  
 CLOSURE ASSESSMENT  
 40.285294 / -104.529716  
 SE¼ NE¼ SEC.27 T4N R64W 6PM  
 WELD COUNTY, COLORADO  
 API # 05-123-17679  
 REMEDIATION # 26855

FIGURE NO.  
 3

DRAWN BY:  
 CT

FL-SS-01@4'  
 11/15/23  
 4'  
 (BRL)

WH-FS-01@6'  
 05/08/23  
 6'  
 (BRL)



## **TABLES**

**Table 1: Photoionization Detector Reading Summary**

**Table 2: Soil Analytical Results Summary**

**TABLE 1**  
**PHOTOIONIZATION DETECTOR READING SUMMARY**  
**SITZMAN #27-8**  
**CLOSURE ASSESSMENT**  
**40.285294 / -104.529716**  
**SE¼ NE¼ SEC.27 T4N R64W 6PM**  
**WELD COUNTY, COLORADO**  
**API # 05-123-17679**  
**REMEDIATION # 26855**

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WH-SS-01 @ 5' (40.285317 / -104.529742)	05/08/23	5	2.2	N
WH-SS-02 @ 5' (40.285303 / -104.529722)	05/08/23	5	2.7	N
WH-SS-03 @ 5' (40.285285 / -104.529742)	05/08/23	5	3.4	N
WH-SS-04 @ 5' (40.285300 / -104.529761)	05/08/23	5	2.9	N
WH-FS-01 @ 6' (40.285302 / -104.529740)	05/08/23	6	4.1	Y
FL-SS-01 @ 4' (40.285311 / -104.529741)	11/15/23	4	1.5	N
FL-SS-02 @ 4' (40.285584 / -104.529744)	11/15/23	4	1.8	N
FL-SS-03 @ 4' (40.285838 / -104.529765)	11/15/23	4	1.6	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector				

TABLE 2  
SOIL ANALYTICAL RESULTS SUMMARY  
SITZMAN #27-8  
CLOSURE ASSESSMENT  
40.285294 / -104.529716  
SE¼ NE¼ SEC.27 T4N R64W 6PM  
WELD COUNTY, COLORADO  
API # 05-123-17679  
REMEDIAION # 26855

Sample Location		WH-FS-01 @ 6'		FL-SS-03 @ 4'	
(Latitude / Longitude)		(40.285302 / -104.529740)		(40.285838 / -104.529765)	
Sample Date		5/8/2023		11/15/2023	
Sample Depth		6'		4'	
PID Reading (ppm-v)		4.1		1.6	
Regulatory Limits					
Chemical of Concern	Units	ECMC Table 915-1 RSSLs	ECMC Table 915-1 GSSLs		
<b>VOCS</b>					
Benzene	mg/kg	1.2	0.0026	<0.00200	<0.00200
Toluene	mg/kg	490	0.69	<0.00200	<0.00200
Ethylbenzene	mg/kg	5.8	0.78	<0.00200	<0.00200
Total Xylenes	mg/kg	58	9.9	<0.00200	<0.00200
Naphthalene	mg/kg	2	0.0038	<0.00380	<0.00380
1,2,4-Trimethylbenzene	mg/kg	30	0.0081	<0.00200	<0.00200
1,3,5-Trimethylbenzene	mg/kg	27	0.0087	<0.00200	<0.00200
<b>TOTAL PETROLEUM HYDROCARBONS</b>					
TPH-GRO	mg/kg	500	--	<0.200	<0.200
TPH-DRO	mg/kg	500	--	<25.0	<25.0
TPH-RRO	mg/kg	500	--	<100	<100
<b>POLYCYCLIC AROMATIC HYDROCARBONS</b>					
1-Methyl-naphthalene	mg/kg	18	0.006	<0.00201	<0.002
2-Methyl-naphthalene	mg/kg	24	0.019	<0.00201	<0.002
Acenaphthene	mg/kg	360	0.55	<0.00067	<0.020
Anthracene	mg/kg	1800	5.8	<0.00067	<0.020
Benzo(a)-anthracene	mg/kg	1.1	0.011	<0.00067	<0.005
Benzo(a)-pyrene	mg/kg	0.11	0.24	<0.00067	<0.020
Benzo(b)-fluoranthene	mg/kg	1.1	0.3	<0.00067	<0.020
Benzo(k)-fluoranthene	mg/kg	11	2.9	<0.00067	<0.020
Chrysene	mg/kg	110	9	<0.00067	<0.020
Dibenzo(a,h)-anthracene	mg/kg	0.11	0.096	<0.00067	<0.020
Fluoranthene	mg/kg	240	8.9	<0.00067	<0.020
Fluorene	mg/kg	240	0.54	<0.00067	<0.020
Indeno(1,2,3-cd)-pyrene	mg/kg	1.1	0.98	<0.00067	<0.020
Pyrene	mg/kg	180	1.3	<0.00067	<0.020
<b>SOIL SUITABILITY (Inorganics)</b>					
Boron	mg/L	2	--	0.434	0.820
pH	standard unit	6-8.3	--	8.14	8.13
Sodium Adsorption Ratio (SAR)	--	<6	--	2.66	4.22
Specific Conductance (EC)	mmhos/cm	<4	--	0.793	1.68
ECMC = Energy & Carbon Management Commission mg/kg = milligrams per kilogram mmhos/cm = millimhos per centimeter PID = Photoionization Detector ppm-v = parts per million by volume mg/L = milligrams per liter SAR = Sodium Adsorption Ratio Notes: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit and/or minimum detection limit. Values presented in <b>BOLD</b> exceed ECMC Table 915-1 Regulatory Limits.					

## **ATTACHMENT A**

### **Photo Log**

Sitzman #27-8  
API # 05-123-17679  
Remediation # 26855

Closure Assessment

May-November 2023



# Wellhead Excavation – 05/08/23



Looking south-southeast

No petroleum hydrocarbon staining or odor observed



Looking northeast

No petroleum hydrocarbon staining or odor observed

# Flowline Assessment – 11/15/23



Looking north at flowline point A

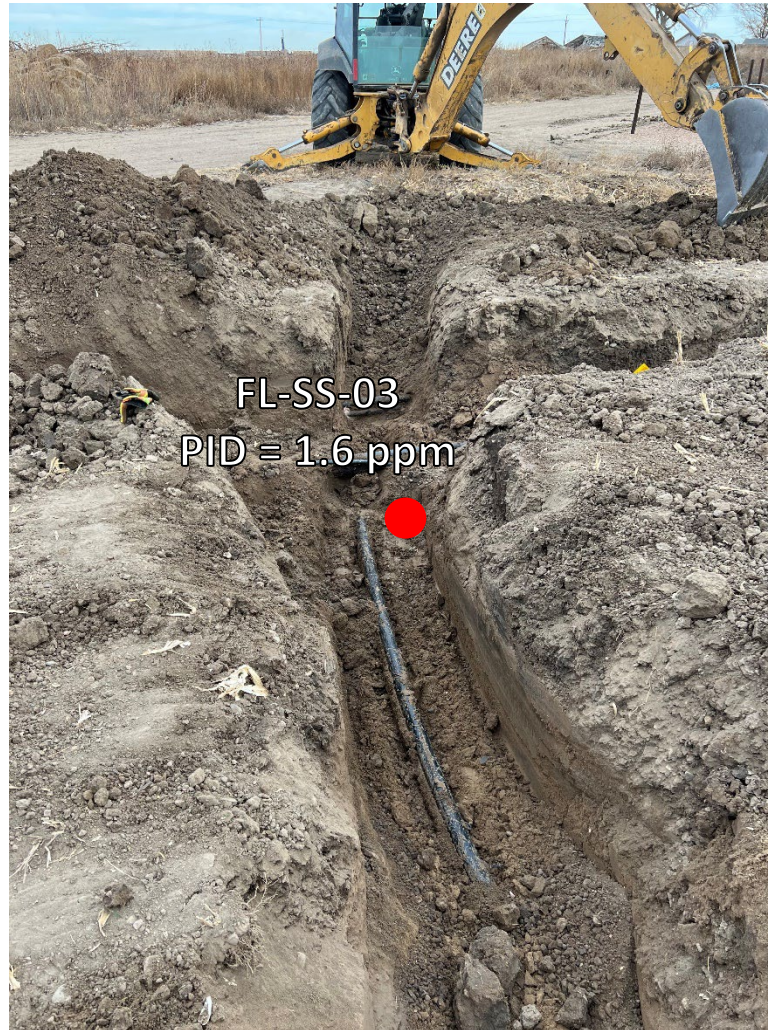
No petroleum hydrocarbon staining or odor observed



Looking north at bellhole/cut point for removal

No petroleum hydrocarbon staining or odor observed

# Flowline Assessment – 11/15/23



Looking northeast at flowline change of direction

No petroleum hydrocarbon staining or odor observed

## **ATTACHMENT B**

### **Laboratory Analytical Reports**



May 18, 2023

Eagle Environmental Consulting, LLC

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - Sitzman #27-8

Project Number - [none]

Attached are your analytical results for Noble - Sitzman #27-8 received by Origins Laboratory, Inc. May 08, 2023. This project is associated with Origins project number Y305225-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Sitzman #27-8

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@6'	Y305225-01	Soil	May 8, 2023 13:15	05/08/2023 14:29

Origins Laboratory, Inc.



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

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

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

www.originslaboratory.com

page | of

**4305225**

**ORIGINS**  
LABORATORY, INC

Client: Eagle Environmental Consulting  
 Address: 8000 W 44th Ave  
Wheat Ridge, CO 80033  
 Telephone Number: 303-433-0179  
 Email Address: mc@eagle-enviro.com

Project Manager: Martin Eckert III  
 Project Name: Sitzman #27-8  
 Project Number: \_\_\_\_\_  
 Samples Collected By: IM


Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative			Matrix		Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater		
UH-FS-01 EQ	5/8/23	1315	3	X			X		EC/SAR pH = 1	
									stomach pick req 2	
									3	
									4	
									5	
									6	
									7	
									8	
									9	
									10	

Relinquished By: [Signature] Date: 5/8/23 Time: 1429  
 Relinquished By: [Signature] Date: 5/8/23 Time: 1429

Turnaround Time:  
 Same Day  24 Hr   
 48 Hr  72 Hr   
 Standard

Temp Received: 11.7 Date Results Needed: Noble

Bill to Cole

Origins Laboratory, Inc.  


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

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

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

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

**Sample Receipt Checklist**

Origins Work Order: YB05225 Client: Eagle Environ  
 Client Project ID: Sitzman #27-8

Checklist Completed by: JM Shipped Via: HD  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Date/time completed: 5/18/23 Airbill #: NA

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

Cooler Number/Temperature: 1, 11.9 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: 1003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)?</sup>		<input checked="" type="checkbox"/>		SP
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 <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)?</sup>		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1,2)</sup>	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)?</sup>	<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 <sup>(1)?</sup> (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH < 2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	

Additional Comments (if any):

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

Reviewed by (Project Manager) JM Date/Time Reviewed 5-18-23

Origins Laboratory, Inc.



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

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

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**WH-FS-01@6'**  
**5/8/2023 1:15:00PM**

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

**Origins Laboratory, Inc.**  
**Y305225-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.434		0.0985	mg/L	1	B3E1010	05/10/2023	05/11/2023	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B3E1020	05/10/2023	05/12/2023	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	60.9 %		50-150			"	"	"	
------------------------	--------	--	--------	--	--	---	---	---	--

**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B3E0901	05/09/2023	05/09/2023	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

Origins Laboratory, Inc.



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

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**WH-FS-01@6'**  
**5/8/2023 1:15:00PM**

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

**Origins Laboratory, Inc.**  
**Y305225-01 (Soil)**

**GBTEX+TMBs by 8260D**

Surrogate: 1,2-Dichloroethane-d4	109 %		70-130			B3E09 01	05/09/2023	05/09/2023	
Surrogate: Toluene-d8	98.0 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.6 %		70-130			"	"	"	

**Metals by Saturated Paste by EPA 6010**

Calcium	2.36		0.499	meq/L	10	[CALC]	05/09/2023	05/10/2023	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	3.35		0.435	"	"	"	"	"	

**PAH by 8270D SIM**

1-Methylnaphthalene	ND	0.00109	0.00201	mg/Kg	1	L681295	05/11/2023	05/11/2023	
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	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	"	"	"	"	"	

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 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**WH-FS-01@6'**  
**5/8/2023 1:15:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y305225-01 (Soil)**

**PAH by 8270D SIM**

Fluoranthene	ND	0.000394	0.00067	mg/Kg	1	L681295	05/11/2023	05/11/2023	
Fluorene	ND	0.000286	0.00067	"	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"	
Pyrene	ND	0.000643	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	48.5 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	67.4 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	47 %		29-110			"	"	"	

**pH in Soil by 9045D**

pH	8.14			pH Units	1	B3E0908	05/09/2023	05/10/2023	
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**SAR by 20B Saturated Paste**

SAR	2.66			SAR	1	B3E0907	05/09/2023	05/10/2023	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.793		0.00500	mmhos/cm	1	B3E0908	05/09/2023	05/10/2023	
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 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3E0901 - EPA 5030 (soil)**

**Blank (B3E0901-BLK1)**

Prepared: 05/09/2023 Analyzed: 05/09/2023

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	0.13		"	0.125	106		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	99.0		70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125	94.9		70-130			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3E0901 - EPA 5030 (soil)

**LCS (B3E0901-BS1)**

Prepared: 05/09/2023 Analyzed: 05/09/2023

1,2,4-Trimethylbenzene	0.0992	0.00200	mg/kg	0.100		99.2	70-130			
1,3,5-Trimethylbenzene	0.100	0.00200	"	0.100		100	70-130			
Benzene	0.0953	0.00200	"	0.100		95.3	70-130			
Ethylbenzene	0.0931	0.00200	"	0.100		93.1	70-130			
Naphthalene	0.0970	0.00380	"	0.100		97.0	70-130			
Toluene	0.0948	0.00200	"	0.100		94.8	70-130			
o-Xylene	0.0956	0.00200	"	0.100		95.6	70-130			
m,p-Xylene	0.188	0.00400	"	0.200		93.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		106	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.3	70-130			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3E0901 - EPA 5030 (soil)

Matrix Spike (B3E0901-MS1)	Source: Y305222-01			Prepared: 05/09/2023 Analyzed: 05/09/2023						
1,2,4-Trimethylbenzene	0.111	0.00200	mg/kg	0.100	ND	111	70-130			
1,3,5-Trimethylbenzene	0.112	0.00200	"	0.100	ND	112	70-130			
Benzene	0.108	0.00200	"	0.100	ND	108	70-130			
Ethylbenzene	0.106	0.00200	"	0.100	ND	106	70-130			
Naphthalene	0.102	0.00380	"	0.100	0.00148	100	70-130			
Toluene	0.104	0.00200	"	0.100	ND	104	70-130			
o-Xylene	0.108	0.00200	"	0.100	ND	108	70-130			
m,p-Xylene	0.212	0.00400	"	0.200	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

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 Project: Noble - Sitzman #27-8

**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 B3E0901 - EPA 5030 (soil)**

Matrix Spike Dup (B3E0901-MSD1)	Source: Y305222-01			Prepared: 05/09/2023 Analyzed: 05/09/2023						
1,2,4-Trimethylbenzene	0.106	0.00200	mg/kg	0.100	ND	106	70-130	4.68	20	
1,3,5-Trimethylbenzene	0.106	0.00200	"	0.100	ND	106	70-130	5.02	20	
Benzene	0.102	0.00200	"	0.100	ND	102	70-130	5.17	20	
Ethylbenzene	0.102	0.00200	"	0.100	ND	102	70-130	3.90	20	
Naphthalene	0.101	0.00380	"	0.100	0.00148	99.3	70-130	0.988	20	
Toluene	0.101	0.00200	"	0.100	ND	101	70-130	2.99	20	
o-Xylene	0.104	0.00200	"	0.100	ND	104	70-130	3.53	20	
m,p-Xylene	0.206	0.00400	"	0.200	ND	103	70-130	3.17	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.2	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 - Sitzman #27-8

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B3E1020 - EPA 3550B</b>										
<b>Blank (B3E1020-BLK1)</b>										
					Prepared: 05/10/2023 Analyzed: 05/12/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	17		"	24.9		70.0	50-150			

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 Project: Noble - Sitzman #27-8

**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 B3E1020 - EPA 3550B**

**LCS (B3E1020-BS1)**

Prepared: 05/10/2023 Analyzed: 05/12/2023

Diesel (C10-C28)	884	50.0	mg/kg	1000		88.4	70-130			
Residual Range Organics (C28-C40)	929	200	"	1000		92.9	70-130			
Surrogate: o-Terphenyl	44		"	49.8		87.6	50-150			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3E1020 - EPA 3550B**

<b>Matrix Spike (B3E1020-MS1)</b>	<b>Source: Y305222-01</b>			<b>Prepared: 05/10/2023 Analyzed: 05/12/2023</b>						
Diesel (C10-C28)	886	50.0	mg/kg	1000	ND	88.6	70-130			
Residual Range Organics (C28-C40)	934	200	"	1000	ND	93.4	70-130			
Surrogate: o-Terphenyl	34		"	49.8		69.0	50-150			

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 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3E1020 - EPA 3550B</b>										
<b>Matrix Spike Dup (B3E1020-MSD1)</b>					<b>Source: Y305222-01</b>					Prepared: 05/10/2023 Analyzed: 05/12/2023
Diesel (C10-C28)	889	50.0	mg/kg	1000	ND	88.9	70-130	0.360	35	
Residual Range Organics (C28-C40)	937	200	"	1000	ND	93.7	70-130	0.276	35	
Surrogate: o-Terphenyl	41		"	49.8		83.3	50-150			

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3E0907 - Saturated Paste Metals**

**Blank (B3E0907-BLK1)**

Prepared: 05/09/2023 Analyzed: 05/10/2023

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

**Duplicate (B3E0907-DUP1)**

Source: Y305222-01

Prepared: 05/09/2023 Analyzed: 05/10/2023

Calcium PPM	9.02	10.0	mg/L		8.35		7.71	50		
SAR	0.00		SAR		0.712		200	200		
Magnesium PPM	1.81	10.0	mg/L		1.73		4.52	50		
Sodium PPM	9.14	10.0	"		8.65		5.51	50		

**Batch B3E1010 - DTPA Sorbitol Preparation**

**Blank (B3E1010-BLK1)**

Prepared: 05/10/2023 Analyzed: 05/11/2023

Boron	ND	0.100	mg/L							
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**Duplicate (B3E1010-DUP1)**

Source: Y305225-01

Prepared: 05/10/2023 Analyzed: 05/11/2023

Boron	0.418	0.0985	mg/L		0.434		3.70	50		
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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3E0908 - Saturated Paste pH/EC</b>										
<b>Blank (B3E0908-BLK1)</b>					Prepared: 05/09/2023 Analyzed: 05/10/2023					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
<b>Duplicate (B3E0908-DUP1)</b>					<b>Source: Y305222-01</b> Prepared: 05/09/2023 Analyzed: 05/10/2023					
Specific Conductance (EC)	0.231	0.00500	mmhos/cm		0.236			2.05	25	
pH	6.91		pH Units		7.20			4.11	25	

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Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 L681295 - 3550B**

<b>MSD (L 91524-MSD-L681295)</b>		<b>Source: 91524</b>			Prepared: 05/11/2023 Analyzed: 05/11/2023					
Fluorene	0.104	0.00067	mg/Kg	0.167	<0.000286	62.2	30-130	13.1	30	
Pyrene	0.0984	0.00067	"	0.167	<0.000643	58.9	30-130	5.5	30	
1-Methylnaphthalene	0.0974	0.00201	"	0.167	<0.00109	58.3	30-130	4.6	30	
Indeno(1,2,3-cd)pyrene	0.0564	0.00067	"	0.167	<0.000627	33.7	30-130	1.7	30	
Fluoranthene	0.103	0.00067	"	0.167	<0.000394	61.6	30-130	6.5	30	
Dibenz(a,h)anthracene	0.0743	0.00067	"	0.167	<0.000614	44.4	30-130	4.7	30	
2-Methylnaphthalene	0.0921	0.00201	"	0.167	<0.00194	55.1	30-130	7.9	30	
Acenaphthene	0.0952	0.00067	"	0.167	<0.000304	57	30-130	9.7	30	
Anthracene	0.119	0.00067	"	0.167	<0.000334	71.2	30-130	19.1	30	
Benzo(a)anthracene	0.0726	0.00067	"	0.167	<0.000493	43.4	30-130	4.9	30	
Benzo(a)pyrene	0.107	0.00067	"	0.167	<0.000468	64	30-130	2.7	30	
Benzo(b)fluoranthene	0.0389	0.00067	"	0.167	<0.000585	23.2	30-130	0.2	30	*
Benzo(k)fluoranthene	0.0704	0.00067	"	0.167	<0.000437	42.1	30-130	13.6	30	
Chrysene	0.138	0.00067	"	0.167	<0.000624	82.6	30-130	18.4	30	
Surrogate: 2-Fluorobiphenyl	56.4		"	0.333	172	56.4	33-115			
Surrogate: 4-Terphenyl-d14	67.5		"	0.333	236	67.5	33-122			
Surrogate: Nitrobenzene-d5	42		"	0.333	151	42	29-110			

<b>MS (L 91524-MS-L681295)</b>		<b>Source: 91524</b>			Prepared: 05/11/2023 Analyzed: 05/11/2023					
Chrysene	0.166	0.00067	mg/Kg	0.166	<0.000624	100	30-130			
Fluoranthene	0.11	0.00067	"	0.166	<0.000394	66.2	30-130			
Benzo(b)fluoranthene	0.039	0.00067	"	0.166	<0.000585	23.4	30-130			*
Indeno(1,2,3-cd)pyrene	0.0554	0.00067	"	0.166	<0.000627	33.3	30-130			
Benzo(k)fluoranthene	0.0807	0.00067	"	0.166	<0.000437	48.6	30-130			
Pyrene	0.104	0.00067	"	0.166	<0.000643	62.6	30-130			
Fluorene	0.0912	0.00067	"	0.166	<0.000286	54.9	30-130			
1-Methylnaphthalene	0.102	0.00201	"	0.166	<0.00109	61.4	30-130			

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 8000 W 44th Ave  
 Wheat Ridge CO 80033

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 L681295 - 3550B**

<b>MS (L 91524-MS-L681295)</b>		<b>Source: 91524</b>			<b>Prepared: 05/11/2023 Analyzed: 05/11/2023</b>					
Benzo(a)anthracene	0.0691	0.00067	mg/Kg	0.166	<0.000493	41.6	30-130			
Anthracene	0.0982	0.00067	"	0.166	<0.000334	59.1	30-130			
Acenaphthene	0.105	0.00067	"	0.166	<0.000304	63.2	30-130			
2-Methylnaphthalene	0.0997	0.00201	"	0.166	<0.00194	60	30-130			
Benzo(a)pyrene	0.11	0.00067	"	0.166	<0.000468	66.2	30-130			
Dibenz(a,h)anthracene	0.0779	0.00067	"	0.166	<0.000614	46.9	30-130			
Surrogate: Nitrobenzene-d5	54.8		"	0.332	151	54.8	29-110			
Surrogate: 4-Terphenyl-d14	64.7		"	0.332	236	64.7	33-122			
Surrogate: 2-Fluorobiphenyl	60.2		"	0.332	172	60.2	33-115			

<b>LCS (LCS-L681295)</b>		<b>Prepared: 05/11/2023 Analyzed: 05/11/2023</b>								
Benzo(k)fluoranthene	0.112	0.00067	mg/Kg	0.167		67	30-130			
Chrysene	0.139	0.00067	"	0.167		83.2	30-130			
Fluoranthene	0.119	0.00067	"	0.167		71.2	30-130			
Indeno(1,2,3-cd)pyrene	0.0799	0.00067	"	0.167		47.8	30-130			
Benzo(b)fluoranthene	0.0567	0.00067	"	0.167		33.9	30-130			
Pyrene	0.118	0.00067	"	0.167		70.6	30-130			
Dibenz(a,h)anthracene	0.12	0.00067	"	0.167		71.8	30-130			
1-Methylnaphthalene	0.122	0.00201	"	0.167		73	30-130			
Benzo(a)anthracene	0.0899	0.00067	"	0.167		53.8	30-130			
Anthracene	0.144	0.00067	"	0.167		86.2	30-130			
Acenaphthene	0.0931	0.00067	"	0.167		55.7	30-130			
2-Methylnaphthalene	0.117	0.00201	"	0.167		70	30-130			
Fluorene	0.095	0.00067	"	0.167		56.8	30-130			
Benzo(a)pyrene	0.11	0.00067	"	0.167		65.8	30-130			
Surrogate: Nitrobenzene-d5	53.4		"	0.333		53.4	29-110			
Surrogate: 4-Terphenyl-d14	108		"	0.333		108	33-122			

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

Martin C Eckert III  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**PAH by 8270D SIM - Quality Control**  
**Waypoint Analytical, LLC.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L681295 - 3550B</b>										
<b>LCS (LCS-L681295)</b>					Prepared: 05/11/2023 Analyzed: 05/11/2023					
Surrogate: 2-Fluorobiphenyl	76.2		mg/Kg	0.333		76.2	33-115			
<b>LRB (LRB-L681295)</b>					Prepared: 05/11/2023 Analyzed: 05/11/2023					
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	"				-			
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	51.3		"	0.333		51.3	29-110			
Surrogate: 4-Terphenyl-d14	65.7		"	0.333		65.7	33-122			
Surrogate: 2-Fluorobiphenyl	65.4		"	0.333		65.4	33-115			

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8000 W 44th Ave  
Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Sitzman #27-8

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**Notes and Definitions**

U Sample is Non-Detect.

\* QC Failure

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

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

Origins Laboratory, Inc.



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November 28, 2023

Eagle Environmental Consulting, LLC

Andrew Newberry

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - Sitzman #27-8

Project Number - [none]

Attached are your analytical results for Noble - Sitzman #27-8 received by Origins Laboratory, Inc. November 15, 2023. This project is associated with Origins project number Y311401-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

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

Andrew Newberry  
Project Number: [none]  
Project: Noble - Sitzman #27-8

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL-SS-03@4'	Y311401-01	Soil	November 15, 2023 12:52	11/15/2023 14:42

Origins Laboratory, Inc.



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

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: 43114081 Client: Eagle  
 Client Project ID: Sitzman #27-8  
 Checklist Completed by: 11/15/23 JS Shipped Via: HD  
 Date/time completed: 2:45 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: N/A  
 Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_  
 Cooler Number/Temperature: 114 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe)  
 Thermometer ID: TC04

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	/			
Is there ice present (document if blue ice is used)	/			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		/		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		/		
Were all samples received intact <sup>(1)</sup> ?	/			
Was adequate sample volume provided <sup>(1)</sup> ?	/			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		/		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	/			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	/			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	/			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	/			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			/	
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)			/	
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 11/17/23

Origins Laboratory, Inc.

[Signature]

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

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**FL-SS-03@4'**

**11/15/2023 12:52:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y311401-01 (Soil)**

**Boron (DTPA Sorbitol)**

Boron	0.820	0.0984	mg/L	1	B3K1610	KAP	11/16/2023	11/17/2023	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3K1601	ZZZ	11/16/2023	11/17/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ZZZ	"	"	U

Surrogate: o-Terphenyl	76.4 %	50-150			"	"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3K1531	HKS	11/15/2023	11/16/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	HKS	"	"	U
Benzene	ND	0.00200	"	"	"	HKS	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	HKS	"	"	U
Naphthalene	ND	0.00380	"	"	"	HKS	"	"	U
Toluene	ND	0.00200	"	"	"	HKS	"	"	U
Xylenes, total	ND	0.00200	"	"	"	HKS	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	HKS	"	"	U

Surrogate: 1,2-Dichloroethane-d4	117 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	98.6 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

FL-SS-03@4'

11/15/2023 12:52:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
 Y311401-01 (Soil)

**Metals by Saturated Paste by EPA 6010**

Calcium	5.74	0.499	meq/L	10	[CALC]	KAP	11/16/2023	11/17/2023	
Magnesium	2.38	0.823	"	"	"	KAP	"	"	
Sodium	8.51	0.435	"	"	"	KAP	"	"	

**PAH by EPA 8270E**

1-Methylnaphthalene	ND	0.002	mg/kg	1	B3K1632	Windo	11/16/2023	11/20/2023	U
2-Methylnaphthalene	ND	0.002	"	"	"	Windo	"	"	U
Acenaphthene	ND	0.020	"	"	"	Windo	"	"	U
Anthracene	ND	0.020	"	"	"	Windo	"	"	U
Benzo (a) anthracene	ND	0.005	"	"	"	Windo	"	"	U
Benzo (a) pyrene	ND	0.020	"	"	"	Windo	"	"	U
Benzo (b) fluoranthene	ND	0.020	"	"	"	Windo	"	"	U
Benzo (k) fluoranthene	ND	0.020	"	"	"	Windo	"	"	U
Chrysene	ND	0.020	"	"	"	Windo	"	"	U
Dibenz (a,h) anthracene	ND	0.020	"	"	"	Windo	"	"	U
Fluoranthene	ND	0.020	"	"	"	Windo	"	"	U
Fluorene	ND	0.020	"	"	"	Windo	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	Windo	"	"	U
Pyrene	ND	0.020	"	"	"	Windo	"	"	U

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

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**FL-SS-03@4'**

**11/15/2023 12:52:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y311401-01 (Soil)**

**PAH by EPA 8270E**

Surrogate: Fluorene-d10	98.5 %	60-130			B3K16 32		11/16/2023	11/20/2023	
Surrogate: Anthracene-d10	93.1 %	60-130			"		"	"	
Surrogate: Pyrene-d10	105 %	60-130			"		"	"	
Surrogate: Benzo (a) pyrene-d12	95.2 %	60-130			"		"	"	

**pH in Soil by 9045D**

pH	8.13		pH Units	1	B3K1614	EAL	11/16/2023	11/17/2023	
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**SAR by 20B Saturated Paste**

SAR	4.22	0.0100	SAR	1	B3K1612	KAP	11/16/2023	11/17/2023	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	1.68	0.00500	mmhos/cm	1	B3K1614	EAL	11/16/2023	11/17/2023	
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 8000 W 44th Ave  
 Wheat Ridge CO 80033

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3K1531 - EPA 5030 (soil)**

**Blank (B3K1531-BLK1)**

Prepared: 11/15/2023 Analyzed: 11/15/2023

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	0.13		"	0.125	102		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	103		70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125	104		70-130			

Origins Laboratory, Inc.



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Eagle Environmental Consulting, LLC  
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 Wheat Ridge CO 80033

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3K1531 - EPA 5030 (soil)**

**LCS (B3K1531-BS1)**

Prepared: 11/15/2023 Analyzed: 11/15/2023

1,2,4-Trimethylbenzene	0.115	0.00200	mg/kg	0.100		115	70-130			
1,3,5-Trimethylbenzene	0.119	0.00200	"	0.100		119	70-130			
Benzene	0.100	0.00200	"	0.100		100	70-130			
Ethylbenzene	0.111	0.00200	"	0.100		111	70-130			
Naphthalene	0.0976	0.00380	"	0.100		97.6	70-130			
Toluene	0.113	0.00200	"	0.100		113	70-130			
o-Xylene	0.112	0.00200	"	0.100		112	70-130			
m,p-Xylene	0.221	0.00400	"	0.200		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.1	70-130			

Origins Laboratory, Inc.



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Eagle Environmental Consulting, LLC  
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 Wheat Ridge CO 80033

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3K1531 - EPA 5030 (soil)

Matrix Spike (B3K1531-MS1)	Source: Y311391-01			Prepared: 11/15/2023 Analyzed: 11/15/2023						
1,2,4-Trimethylbenzene	0.110	0.00200	mg/kg	0.100	ND	110	70-130			
1,3,5-Trimethylbenzene	0.106	0.00200	"	0.100	ND	106	70-130			
Benzene	0.103	0.00200	"	0.100	ND	103	70-130			
Ethylbenzene	0.104	0.00200	"	0.100	ND	104	70-130			
Naphthalene	0.0975	0.00380	"	0.100	0.000520	96.9	70-130			
Toluene	0.102	0.00200	"	0.100	ND	102	70-130			
o-Xylene	0.101	0.00200	"	0.100	ND	101	70-130			
m,p-Xylene	0.217	0.00400	"	0.200	ND	108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		103	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.3	70-130			

Origins Laboratory, Inc.



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

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3K1531 - EPA 5030 (soil)

Matrix Spike Dup (B3K1531-MSD1)	Source: Y311391-01			Prepared: 11/15/2023 Analyzed: 11/15/2023						
1,2,4-Trimethylbenzene	0.109	0.00200	mg/kg	0.100	ND	109	70-130	0.183	20	
1,3,5-Trimethylbenzene	0.106	0.00200	"	0.100	ND	106	70-130	0.132	20	
Benzene	0.102	0.00200	"	0.100	ND	102	70-130	0.800	20	
Ethylbenzene	0.102	0.00200	"	0.100	ND	102	70-130	1.07	20	
Naphthalene	0.104	0.00380	"	0.100	0.000520	103	70-130	6.28	20	
Toluene	0.100	0.00200	"	0.100	ND	100	70-130	1.25	20	
o-Xylene	0.100	0.00200	"	0.100	ND	100	70-130	0.159	20	
m,p-Xylene	0.216	0.00400	"	0.200	ND	108	70-130	0.574	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		102	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.1	70-130			

Origins Laboratory, Inc.



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

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B3K1601 - EPA 3550B</b>										
<b>Blank (B3K1601-BLK1)</b>										
					Prepared: 11/16/2023 Analyzed: 11/17/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	20		"	24.9		80.7	50-150			

Origins Laboratory, Inc.



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

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3K1601 - EPA 3550B**

**LCS (B3K1601-BS1)**

Prepared: 11/16/2023 Analyzed: 11/17/2023

Diesel (C10-C28)	872	50.0	mg/kg	1000		87.2	70-130			
Residual Range Organics (C28-C40)	1100	200	"	1000		110	70-130			
Surrogate: o-Terphenyl	49		"	49.8		98.6	50-150			

Origins Laboratory, Inc.



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

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3K1601 - EPA 3550B**

<b>Matrix Spike (B3K1601-MS1)</b>	<b>Source: Y311391-01</b>			<b>Prepared: 11/16/2023 Analyzed: 11/17/2023</b>						
Diesel (C10-C28)	890	50.0	mg/kg	1000	ND	89.0	70-130			
Residual Range Organics (C28-C40)	1120	200	"	1000	ND	112	70-130			
Surrogate: o-Terphenyl	49		"	49.8		98.3	50-150			

Origins Laboratory, Inc.



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

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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 B3K1601 - EPA 3550B**

<b>Matrix Spike Dup (B3K1601-MSD1)</b>	<b>Source: Y311391-01</b>		<b>Prepared: 11/16/2023 Analyzed: 11/17/2023</b>							
Diesel (C10-C28)	1020	50.0	mg/kg	1000	ND	102	70-130	13.5	35	
Residual Range Organics (C28-C40)	1300	200	"	1000	ND	130	70-130	14.6	35	
Surrogate: o-Terphenyl	57		"	49.8		114	50-150			

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 Wheat Ridge CO 80033

Andrew Newberry  
 Project Number: [none]  
 Project: Noble - Sitzman #27-8

**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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**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B3K1632 - EPA 3580**

**Blank (B3K1632-BLK1)**

Prepared: 11/16/2023 Analyzed: 11/18/2023

1-Methylnaphthalene	ND	0.002	mg/kg							U
2-Methylnaphthalene	ND	0.002	"							U
Acenaphthene	ND	0.020	"							U
Anthracene	ND	0.020	"							U
Benzo (a) anthracene	ND	0.005	"							U
Benzo (a) pyrene	ND	0.020	"							U
Benzo (b) fluoranthene	ND	0.020	"							U
Benzo (g,h,i) perylene	ND	0.020	"							U
Benzo (k) fluoranthene	ND	0.020	"							U
Chrysene	ND	0.020	"							U
Dibenz (a,h) anthracene	ND	0.020	"							U
Fluoranthene	ND	0.020	"							U
Fluorene	ND	0.020	"							U
Indeno (1,2,3-cd) pyrene	ND	0.020	"							U
Naphthalene	ND	0.002	"							U
Phenanthrene	ND	0.020	"							U
Pyrene	ND	0.020	"							U
Surrogate: Fluorene-d10	200		ug/kg	200		100	60-130			
Surrogate: Anthracene-d10	170		"	200		83.7	60-130			
Surrogate: Pyrene-d10	200		"	200		99.4	60-130			
Surrogate: Benzo (a) pyrene-d12	190		"	200		96.8	60-130			

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**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B3K1632 - EPA 3580**

**LCS (B3K1632-BS1)**

Prepared: 11/16/2023 Analyzed: 11/18/2023

1-Methylnaphthalene	0.192	0.002	mg/kg	0.200		96.1	70-130			
2-Methylnaphthalene	0.190	0.002	"	0.200		94.8	70-130			
Acenaphthene	0.192	0.020	"	0.200		95.8	70-130			
Anthracene	0.187	0.020	"	0.200		93.5	70-130			
Benzo (a) anthracene	0.166	0.005	"	0.200		83.1	70-130			
Benzo (a) pyrene	0.179	0.020	"	0.200		89.7	70-130			
Benzo (b) fluoranthene	0.182	0.020	"	0.200		91.1	70-130			
Benzo (g,h,i) perylene	0.198	0.020	"	0.200		99.1	70-130			
Benzo (k) fluoranthene	0.173	0.020	"	0.200		86.5	70-130			
Chrysene	0.186	0.020	"	0.200		92.8	70-130			
Dibenz (a,h) anthracene	0.187	0.020	"	0.200		93.4	70-130			
Fluoranthene	0.191	0.020	"	0.200		95.7	70-130			
Fluorene	0.196	0.020	"	0.200		97.8	70-130			
Indeno (1,2,3-cd) pyrene	0.182	0.020	"	0.200		91.0	70-130			
Naphthalene	0.196	0.002	"	0.200		98.1	70-130			
Phenanthrene	0.181	0.020	"	0.200		90.3	70-130			
Pyrene	0.176	0.020	"	0.200		88.1	70-130			
Surrogate: Fluorene-d10	200		ug/kg	200		102	60-130			
Surrogate: Anthracene-d10	180		"	200		91.4	60-130			
Surrogate: Pyrene-d10	190		"	200		96.2	60-130			
Surrogate: Benzo (a) pyrene-d12	200		"	200		97.7	60-130			

**Matrix Spike (B3K1632-MS1)**

**Source: Y311372-01**

Prepared: 11/16/2023 Analyzed: 11/18/2023

1-Methylnaphthalene	0.197	0.002	mg/kg	0.200	ND	98.4	70-130			
2-Methylnaphthalene	0.190	0.002	"	0.200	ND	95.0	70-130			
Acenaphthene	0.196	0.020	"	0.200	ND	98.0	70-130			
Anthracene	0.190	0.020	"	0.200	ND	94.8	70-130			

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**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B3K1632 - EPA 3580**

<b>Matrix Spike (B3K1632-MS1)</b>		<b>Source: Y311372-01</b>			Prepared: 11/16/2023 Analyzed: 11/18/2023					
Benzo (a) anthracene	0.175	0.005	mg/kg	0.200	0.0006	87.2	70-130			
Benzo (a) pyrene	0.195	0.020	"	0.200	ND	97.7	70-130			
Benzo (b) fluoranthene	0.205	0.020	"	0.200	ND	102	70-130			
Benzo (g,h,i) perylene	0.197	0.020	"	0.200	ND	98.4	70-130			
Benzo (k) fluoranthene	0.197	0.020	"	0.200	ND	98.4	70-130			
Chrysene	0.183	0.020	"	0.200	0.0003	91.1	70-130			
Dibenz (a,h) anthracene	0.194	0.020	"	0.200	ND	97.2	70-130			
Fluoranthene	0.187	0.020	"	0.200	ND	93.5	70-130			
Fluorene	0.195	0.020	"	0.200	ND	97.6	70-130			
Indeno (1,2,3-cd) pyrene	0.185	0.020	"	0.200	ND	92.7	70-130			
Naphthalene	0.201	0.002	"	0.200	ND	101	70-130			
Phenanthrene	0.187	0.020	"	0.200	ND	93.6	70-130			
Pyrene	0.186	0.020	"	0.200	ND	93.2	70-130			
Surrogate: Fluorene-d10	200		ug/kg	200		98.8	60-130			
Surrogate: Anthracene-d10	180		"	200		91.8	60-130			
Surrogate: Pyrene-d10	190		"	200		97.0	60-130			
Surrogate: Benzo (a) pyrene-d12	200		"	200		98.5	60-130			

<b>Matrix Spike Dup (B3K1632-MSD1)</b>		<b>Source: Y311372-01</b>			Prepared: 11/16/2023 Analyzed: 11/18/2023					
1-Methylnaphthalene	0.202	0.002	mg/kg	0.200	ND	101	70-130	2.40	20	
2-Methylnaphthalene	0.197	0.002	"	0.200	ND	98.5	70-130	3.59	20	
Acenaphthene	0.202	0.020	"	0.200	ND	101	70-130	2.98	20	
Anthracene	0.175	0.020	"	0.200	ND	87.3	70-130	8.21	20	
Benzo (a) anthracene	0.183	0.005	"	0.200	0.0006	91.0	70-130	4.19	20	
Benzo (a) pyrene	0.204	0.020	"	0.200	ND	102	70-130	4.29	20	
Benzo (b) fluoranthene	0.201	0.020	"	0.200	ND	101	70-130	1.66	20	
Benzo (g,h,i) perylene	0.211	0.020	"	0.200	ND	106	70-130	6.94	20	

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**EPA 8270E (SW846) - Semivolatile Organic Compounds - 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 B3K1632 - EPA 3580**

<b>Matrix Spike Dup (B3K1632-MSD1)</b>	<b>Source: Y311372-01</b>			<b>Prepared: 11/16/2023 Analyzed: 11/18/2023</b>						
Benzo (k) fluoranthene	0.196	0.020	mg/kg	0.200	ND	98.2	70-130	0.243	20	
Chrysene	0.186	0.020	"	0.200	0.0003	93.1	70-130	2.11	20	
Dibenz (a,h) anthracene	0.198	0.020	"	0.200	ND	99.2	70-130	1.97	20	
Fluoranthene	0.200	0.020	"	0.200	ND	100	70-130	6.99	20	
Fluorene	0.203	0.020	"	0.200	ND	102	70-130	4.07	20	
Indeno (1,2,3-cd) pyrene	0.197	0.020	"	0.200	ND	98.7	70-130	6.29	20	
Naphthalene	0.216	0.002	"	0.200	ND	108	70-130	7.05	20	
Phenanthrene	0.191	0.020	"	0.200	ND	95.7	70-130	2.17	20	
Pyrene	0.183	0.020	"	0.200	ND	91.7	70-130	1.67	20	
Surrogate: Fluorene-d10	200		ug/kg	200		99.0	60-130			
Surrogate: Anthracene-d10	180		"	200		90.1	60-130			
Surrogate: Pyrene-d10	190		"	200		95.3	60-130			
Surrogate: Benzo (a) pyrene-d12	200		"	200		101	60-130			

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 Project: Noble - Sitzman #27-8

**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 B3K1610 - DTPA Sorbitol Preparation**

**Blank (B3K1610-BLK1)**

Prepared: 11/16/2023 Analyzed: 11/17/2023

Boron ND 0.100 mg/L

**Duplicate (B3K1610-DUP1)**

**Source: Y311375-01**

Prepared: 11/16/2023 Analyzed: 11/17/2023

Boron 0.0782 0.100 mg/L 0.124 45.4 50

**Batch B3K1612 - Saturated Paste Metals**

**Blank (B3K1612-BLK1)**

Prepared: 11/16/2023 Analyzed: 11/17/2023

SAR ND 0.0100 SAR

Calcium PPM ND 10.0 mg/L

Magnesium PPM ND 10.0 "

Sodium PPM ND 10.0 "

**Duplicate (B3K1612-DUP1)**

**Source: Y311376-01**

Prepared: 11/16/2023 Analyzed: 11/17/2023

Calcium PPM 18.3 10.0 mg/L 18.8 2.54 50

SAR ND 0.0100 SAR 2.07 200

Magnesium PPM 5.88 10.0 mg/L 5.85 0.512 50

Sodium PPM 38.6 10.0 " 40.0 3.62 50

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**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 B3K1614 - Saturated Paste pH/EC**

**Blank (B3K1614-BLK1)**

Prepared: 11/16/2023 Analyzed: 11/17/2023

Specific Conductance (EC) ND 0.00500 mmhos/cm

**Duplicate (B3K1614-DUP1)**

**Source: Y311376-01**

Prepared: 11/16/2023 Analyzed: 11/17/2023

pH	8.11		pH Units		8.24			1.59	25	
Specific Conductance (EC)	0.349	0.00500	mmhos/cm		0.344			1.33	25	

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Andrew Newberry  
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Project: Noble - Sitzman #27-8

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**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 at a wet weight basis.

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