

Wellhead Closure Checklist

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

Additional attachments (optional):		Pit Closure <u> </u>		Tank Battery Closure <u> </u>		Flowline Closure <u> </u>		Partially Buried Vault Closure <u> </u>	
Site Name & COGCC Facility Number: Born-Sitzman #2		Date: 05/30/23					Remediation Project #: 27926		
Associated Wells: 05-123-11781		Age of Site: Years					Number of Photos Attached: 1		
Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple)						40.281820 / -104.529770			
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)									
Good Condition									
USCS Soil Type: Sandy CLAY					Estimated Depth to Groundwater: ~10-20'				
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	05-123-11781								
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	2.9	3.7	4.4	2.3	5.7				
Sample taken? Location/Sample ID#	WH-SS-01	WH-SS-02	WH-SS-03	WH-SS-04	WH-FS-01				
Photo Number(s)	See photolog								
Other observations regarding wellheads:									
Well casing cut/capped following assessment.									
Summary									
Was impacted soil identified?									
<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: 5.7				Total number of samples submitted to lab for analysis: 1					
If more than 10 cubic yards of impacted soil were observed:									
Vertical extent:				Estimated spill volume:					
N/A									
Lateral extent:				Volume of soil removed:					
Is additional investigation required?									
Was groundwater encountered during the investigation?									
<input checked="" type="checkbox"/> No		Yes - not impacted or in contact with impacted soils			Yes - groundwater impacted and/or in contact with impacted soils				
Measured depth to groundwater:				Was remedial groundwater removal conducted? Yes No					
Date Groundwater was encountered:				Commencement date of removal:					
Sheen on groundwater? Yes No				N/A					
Free product observed? Yes No				Volume of groundwater removed prior to sampling:					
				Volume of groundwater removed post sampling:					
Total number of samples collected:				Total Volume of groundwater removed:					
Total number of samples submitted to lab for analysis:									

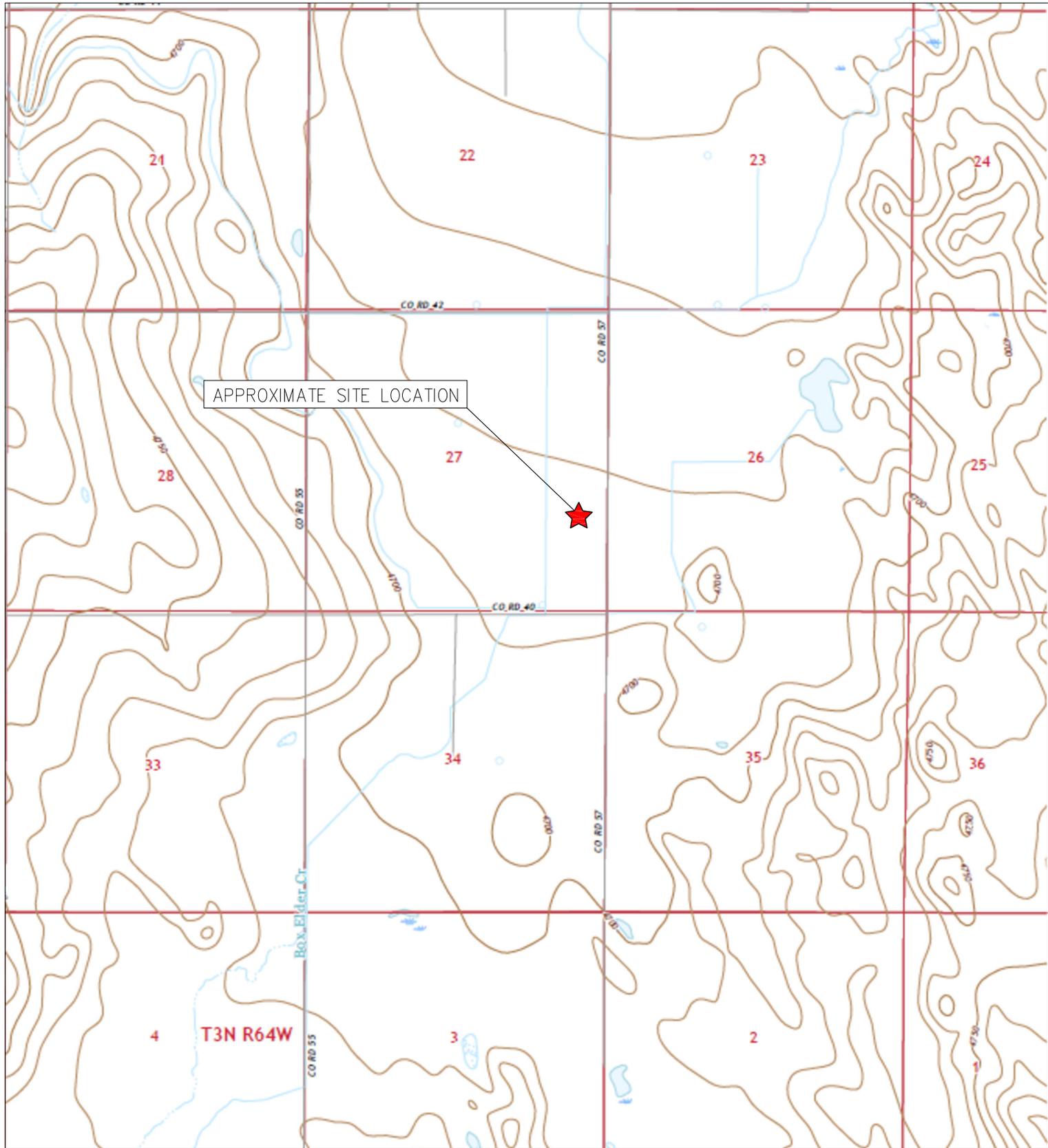


FIGURES

Figure 1: Topographic Site Location Map

Figure 2: Aerial Site Location Map

Figure 3: Soil Analytical Map



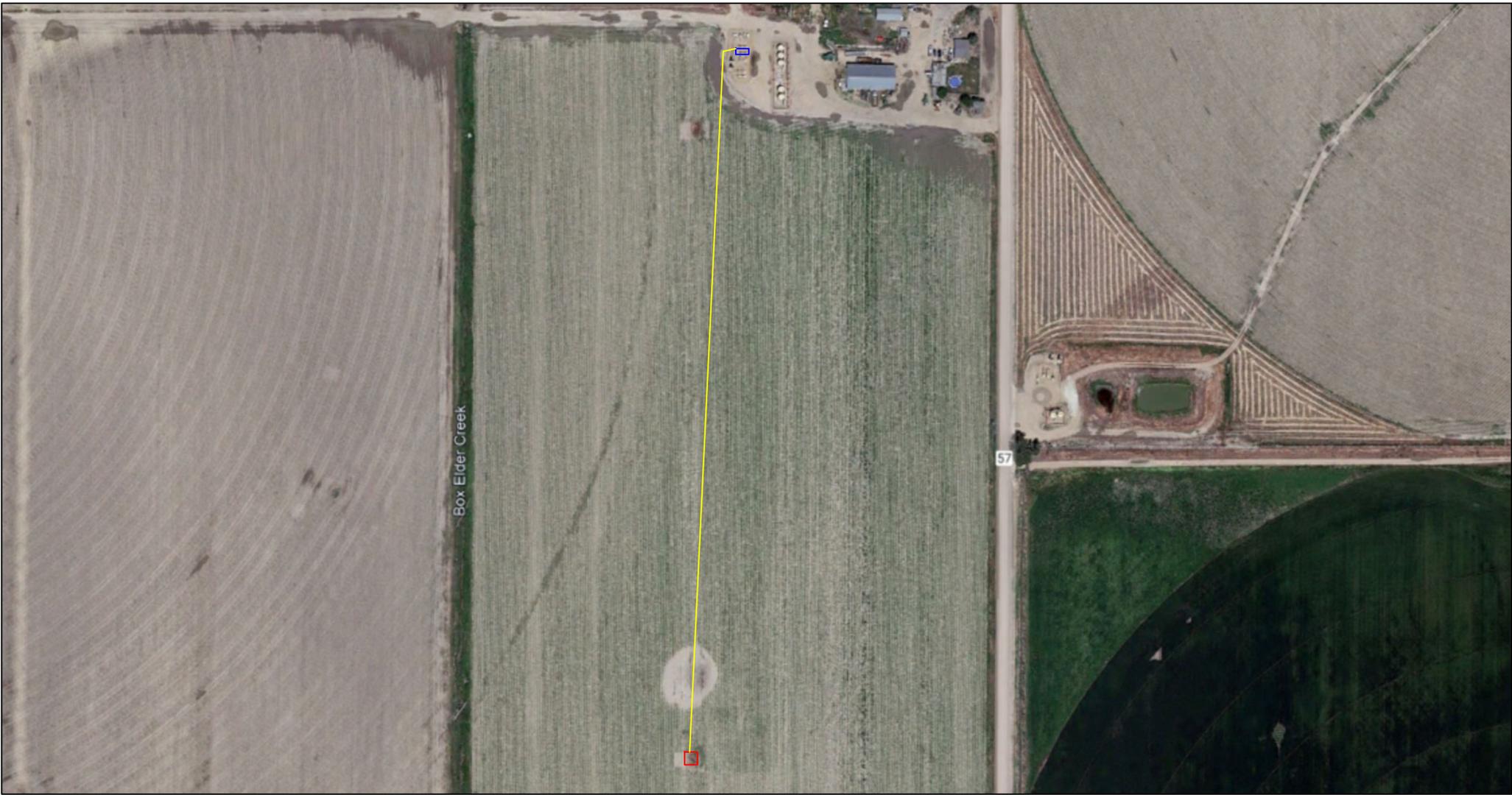
TOPOGRAPHIC SITE LOCATION MAP
 BORN-SITZMAN #2
 CLOSURE ASSESSMENT
 40.281820 / -104.529770
 NE¼ SE¼ SEC.27 T4N R64W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-11781
 REMEDIATION # 27926



EAGLE
 ENVIRONMENTAL
 CONSULTING, LLC

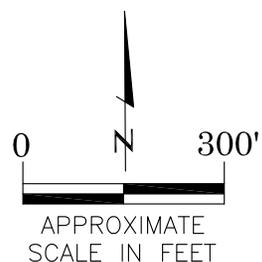
8000 W 44th Ave, Wheat Ridge, CO 80033
 Ph: 303-433-0479 • F: 303-325-5449





LEGEND

- FORMER BORN-SITZMAN #2 WELLHEAD (PLUGGED AND ABANDONED)
- ASSOCIATED SEPARATOR
- APPROXIMATE FLOWLINE LOCATION



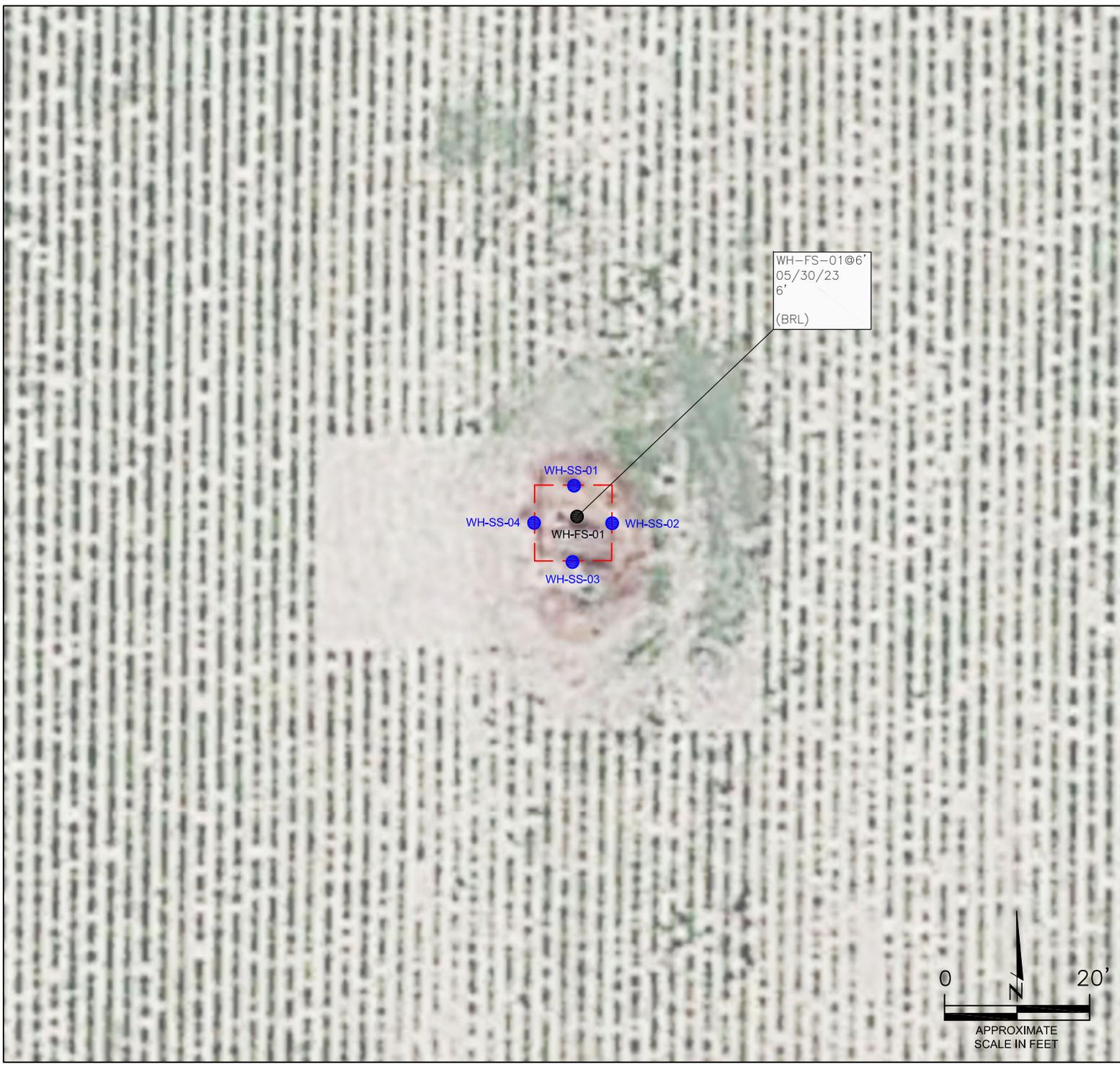
AERIAL SITE LOCATION MAP
 BORN-SITZMAN #2
 CLOSURE ASSESSMENT
 40.281820 / -104.529770
 NE¼ SE¼ SEC.27 T4N R64W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-11781
 REMEDIATION # 27926

FIGURE NO.
2

DRAWN BY:
KM



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 Ph: 303-433-0479 • F: 303-325-5449



LEGEND

- WELLHEAD ASSESSMENT BOUNDARIES
- 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)
 N = NAPHTHALENE (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 ECOM TABLE 915-1 REGULATORY LIMITS

ECMC = ENERGY & CARBON MANAGEMENT COMMISSION

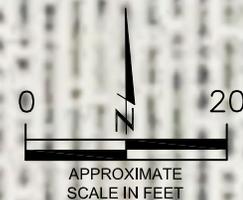
SOIL ANALYTICAL MAP
 BORN-SITZMAN #2
 CLOSURE ASSESSMENT
 40.281820 / -104.529770
 NE¼ SE¼ SEC.27 T4N R64W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-11781
 REMEDIATION # 27926

FIGURE NO.
3

DRAWN BY:
KM



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TABLES

Table 1: Photoionization Detector Reading Summary

Table 2: Soil Analytical Results Summary

TABLE 1
PHOTOIONIZATION DETECTOR READING SUMMARY
BORN-SITZMAN #2
CLOSURE ASSESSMENT
40.281820 / -104.529770
NE¼ SE¼ SEC.27 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-11781
REMEDIATION # 27926

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WH-SS-01 @ 5' (40.281835 / -104.529772)	05/30/23	5	2.9	N
WH-SS-02 @ 5' (40.281822 / -104.529756)	05/30/23	5	3.7	N
WH-SS-03 @ 5' (40.281810 / -104.529771)	05/30/23	5	4.4	N
WH-SS-04 @ 5' (40.281826 / -104.529791)	05/30/23	5	2.3	N
WH-FS-01 @ 6' (40.281824 / -104.529773)	05/30/23	6	5.7	Y
(Y/N) = Yes or No ppm-v = parts per million by volume PID = Photoionization Detector				



TABLE 2
SOIL ANALYTICAL RESULTS SUMMARY
BORN-SITZMAN #2
CLOSURE ASSESSMENT
40.281820 / -104.529770
NE¼ SE¼ SEC.27 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-11781
REMEDIAION # 27926

Sample Location		WH-FS-01 @ 6'		
(Latitude / Longitude)		(40.281824 / -104.529773)		
Sample Date		5/30/2023		
Sample Depth		6'		
PID Reading (ppm-v)		5.7		
Regulatory Limits				
Chemical of Concern	Units	ECMC Table 915-1 RSSLs	ECMC Table 915-1 GSSLs	
VOCs				
Benzene	mg/kg	1.2	0.0026	<0.00200
Toluene	mg/kg	490	0.69	<0.00200
Ethylbenzene	mg/kg	5.8	0.78	<0.00200
Total Xylenes	mg/kg	58	9.9	<0.00200
Naphthalene	mg/kg	2	0.0038	<0.00380
1,2,4-Trimethylbenzene	mg/kg	30	0.0081	<0.00200
1,3,5-Trimethylbenzene	mg/kg	27	0.0087	<0.00200
TOTAL PETROLEUM HYDROCARBONS				
TPH-GRO	mg/kg	500	--	<0.200
TPH-DRO	mg/kg	500	--	<25.0
TPH-RRO	mg/kg	500	--	<100
POLYCYCLIC AROMATIC HYDROCARBONS				
1-Methyl-naphthalene	mg/kg	18	0.006	<0.002
2-Methyl-naphthalene	mg/kg	24	0.019	<0.002
Acenaphthene	mg/kg	360	0.55	<0.020
Anthracene	mg/kg	1800	5.8	<0.020
Benzo(a)-anthracene	mg/kg	1.1	0.011	<0.005
Benzo(a)-pyrene	mg/kg	0.11	0.24	<0.020
Benzo(b)-fluoranthene	mg/kg	1.1	0.3	<0.020
Benzo(k)-fluoranthene	mg/kg	11	2.9	<0.020
Chrysene	mg/kg	110	9	<0.020
Dibenzo(a,h)-anthracene	mg/kg	0.11	0.096	<0.020
Fluoranthene	mg/kg	240	8.9	<0.020
Fluorene	mg/kg	240	0.54	<0.020
Indeno(1,2,3-cd)-pyrene	mg/kg	1.1	0.98	<0.020
Pyrene	mg/kg	180	1.3	<0.020
SOIL SUITABILITY (Inorganics)				
Boron	mg/L	2	--	0.613
pH	standard unit	6-8.3	--	8.14
Sodium Adsorption Ratio (SAR)	--	<6	--	2.01
Specific Conductance (EC)	mmhos/cm	<4	--	1.23
<p>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</p> <p>VOCs - Volatile Organic Compounds RSSLs = Residential Soil Screening Levels GSSLs = Protection of Groundwater Soil Screening Levels TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics TPH-RRO = Total Petroleum Hydrocarbons - Residual Range Organics</p> <p>Notes: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit and/or minimum detection limit. Values presented in BOLD exceed ECMC Table 915-1 Regulatory Limits.</p>				



ATTACHMENT A

Photo Log

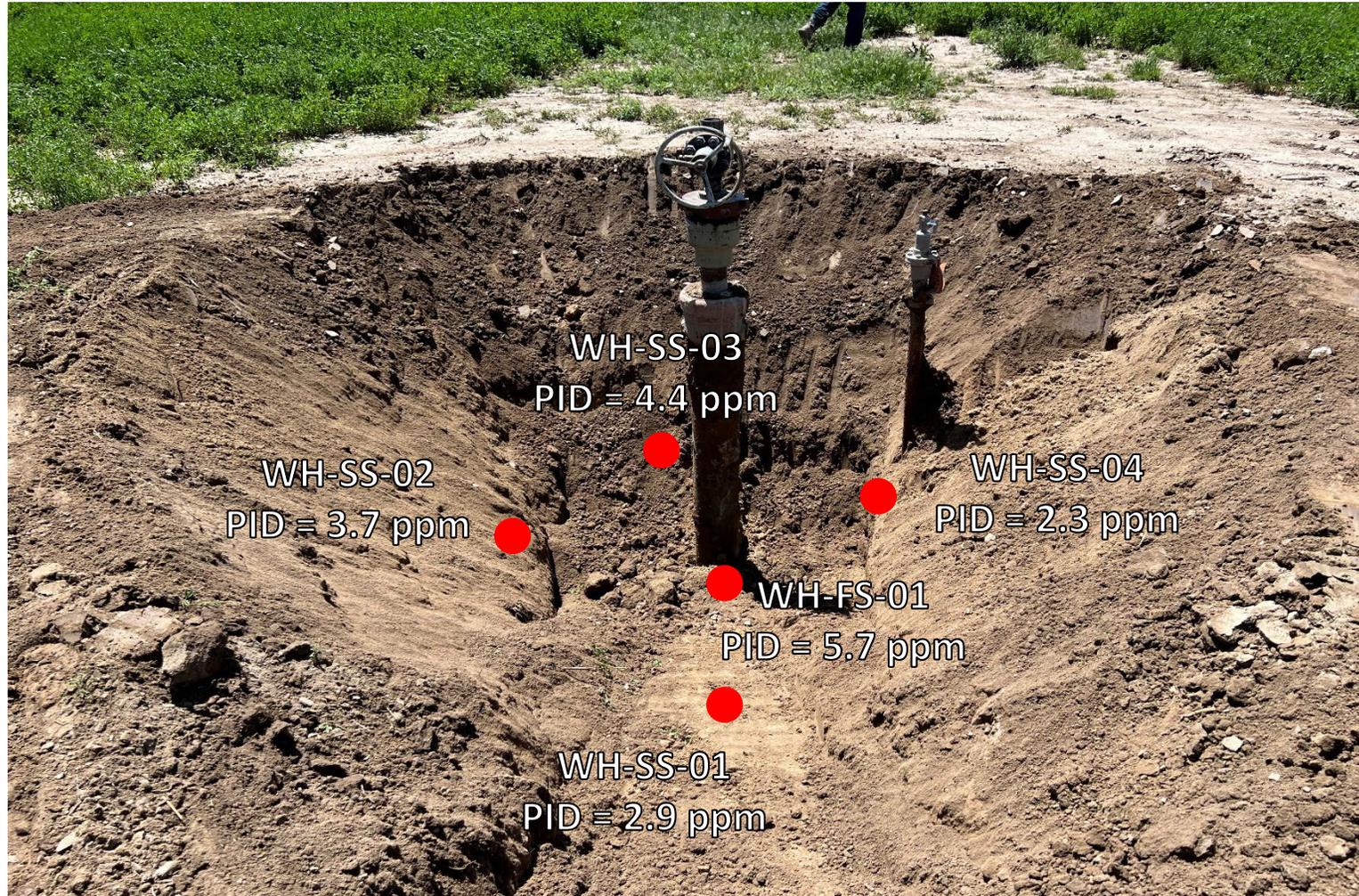
Born-Sitzman #2
API # 05-123-11781
Remediation # 27926

Closure Assessment

May 2023



Wellhead Excavation – 05/30/23



Looking south

No petroleum hydrocarbon staining or odor observed



ATTACHMENT B

Laboratory Analytical Report



June 08, 2023

Eagle Environmental Consulting, LLC

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - Born Sitzman #2

Project Number - [none]

Attached are your analytical results for Noble - Born Sitzman #2 received by Origins Laboratory, Inc. May 30, 2023. This project is associated with Origins project number Y305749-01.

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 - Born Sitzman #2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@6'	Y305749-01	Soil	May 30, 2023 12:02	05/30/2023 14:10

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 - Born Sitzman #2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4205749 Client: Eagle
 Client Project ID: Born Sitzman
 Checklist Completed by: TSM/EHS Shipped Via: TD
 Date/time completed: 5/20/23 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: na
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 Cooler Number/Temperature: 1, 2 °C _____ °C _____ °C (Describe) _____ °C
 Thermometer ID: 7004

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	/			
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 ⁽¹⁾ ?	/			
Was adequate sample volume provided ⁽¹⁾ ?	/			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		/		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	/			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	/			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	/			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	/			
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 ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			/	
Additional Comments (if any):				

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

Reviewed by (Project Manager) [Signature] Date/Time Reviewed 6/1/23

Origins Laboratory, Inc.

[Signature]

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 - Born Sitzman #2

WH-FS-01@6'
5/30/2023 12:02:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y305749-01 (Soil)

Boron (DTPA Sorbitol)

Boron	0.613	0.100	mg/L	1	B3F0104	KAP	06/01/2023	06/02/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B3F0118	ZZZ	06/01/2023	06/02/2023	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	ZZZ	"	"	U

Surrogate: o-Terphenyl	97.0 %	50-150			"	"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B3F0216	ZZZ	06/02/2023	06/02/2023	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Benzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	ZZZ	"	"	U
Naphthalene	ND	0.00380	"	"	"	ZZZ	"	"	U
Toluene	ND	0.00200	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	0.00200	"	"	"	ZZZ	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	109 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	94.8 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	"	

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 - Born Sitzman #2

WH-FS-01@6'

5/30/2023 12:02:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

Origins Laboratory, Inc.
Y305749-01 (Soil)

Metals by Saturated Paste by EPA 6010

Calcium	4.48	0.499	meq/L	10	[CALC]	KAP	05/31/2023	06/01/2023	
Magnesium	1.76	0.823	"	"	"	KAP	"	"	
Sodium	3.56	0.435	"	"	"	KAP	"	"	

PAH by EPA 8270E

1-Methylnaphthalene	ND	0.002	mg/kg	1	B3E3114	agile	05/31/2023	05/31/2023	U
2-Methylnaphthalene	ND	0.002	"	"	"	agile	"	"	U
Acenaphthene	ND	0.020	"	"	"	agile	"	"	U
Anthracene	ND	0.020	"	"	"	agile	"	"	U
Benzo (a) anthracene	ND	0.005	"	"	"	agile	"	"	U
Benzo (a) pyrene	ND	0.020	"	"	"	agile	"	"	U
Benzo (b) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Benzo (k) fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Chrysene	ND	0.020	"	"	"	agile	"	"	U
Dibenz (a,h) anthracene	ND	0.020	"	"	"	agile	"	"	U
Fluoranthene	ND	0.020	"	"	"	agile	"	"	U
Fluorene	ND	0.020	"	"	"	agile	"	"	U
Indeno (1,2,3-cd) pyrene	ND	0.020	"	"	"	agile	"	"	U
Pyrene	ND	0.020	"	"	"	agile	"	"	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 - Born Sitzman #2

WH-FS-01@6'

5/30/2023 12:02:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

Origins Laboratory, Inc.
Y305749-01 (Soil)

PAH by EPA 8270E

Surrogate: Nitrobenzene-d5	107 %	60-130			B3E31 14		05/31/2023	05/31/2023	
Surrogate: 2-Fluorobiphenyl	99.9 %	60-130			"		"	"	
Surrogate: Terphenyl-d14	103 %	60-130			"		"	"	

pH in Soil by 9045D

pH	8.14		pH Units	1	B3E3110	HJD	05/31/2023	06/01/2023	
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SAR by 20B Saturated Paste

SAR	2.01		SAR	1	B3E3105	KAP	05/31/2023	06/01/2023	
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	1.23	0.00500	mmhos/cm	1	B3E3110	HJD	05/31/2023	06/01/2023	
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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 - Born Sitzman #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3F0118 - EPA 3550B										
Blank (B3F0118-BLK1)										
					Prepared: 06/01/2023 Analyzed: 06/02/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	24		"	24.9		97.7	50-150			

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 - Born Sitzman #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B3F0118 - EPA 3550B

LCS (B3F0118-BS1)

Prepared: 06/01/2023 Analyzed: 06/02/2023

Diesel (C10-C28)	977	50.0	mg/kg	1000		97.7	70-130			
Residual Range Organics (C28-C40)	1020	200	"	1000		102	70-130			
Surrogate: o-Terphenyl	49		"	49.8		99.0	50-150			

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 - Born Sitzman #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B3F0118 - EPA 3550B

Matrix Spike (B3F0118-MS1)	Source: Y305716-01			Prepared: 06/01/2023 Analyzed: 06/02/2023						
Diesel (C10-C28)	1050	50.0	mg/kg	1000	ND	105	70-130			
Residual Range Organics (C28-C40)	1120	200	"	1000	ND	112	70-130			
Surrogate: o-Terphenyl	50		"	49.8		99.5	50-150			

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Eagle Environmental Consulting, LLC
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 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Born Sitzman #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3F0118 - EPA 3550B										
Matrix Spike Dup (B3F0118-MSD1)					Source: Y305716-01					Prepared: 06/01/2023 Analyzed: 06/02/2023
Diesel (C10-C28)	948	50.0	mg/kg	1000	ND	94.8	70-130	9.96	35	
Residual Range Organics (C28-C40)	992	200	"	1000	ND	99.2	70-130	12.1	35	
Surrogate: o-Terphenyl	45		"	49.8		89.7	50-150			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Born Sitzman #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F0216 - EPA 5030 (soil)

Blank (B3F0216-BLK1)

Prepared: 06/02/2023 Analyzed: 06/02/2023

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	0.12		"	0.125	95.6		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	96.4		70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125	102		70-130			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Born Sitzman #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F0216 - EPA 5030 (soil)

LCS (B3F0216-BS1)

Prepared: 06/02/2023 Analyzed: 06/02/2023

1,2,4-Trimethylbenzene	0.0943	0.00200	mg/kg	0.100		94.3	70-130			
1,3,5-Trimethylbenzene	0.101	0.00200	"	0.100		101	70-130			
Benzene	0.102	0.00200	"	0.100		102	70-130			
Ethylbenzene	0.0949	0.00200	"	0.100		94.9	70-130			
Naphthalene	0.104	0.00380	"	0.100		104	70-130			
Toluene	0.0973	0.00200	"	0.100		97.3	70-130			
o-Xylene	0.0957	0.00200	"	0.100		95.7	70-130			
m,p-Xylene	0.190	0.00400	"	0.200		95.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		97.6	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		97.4	70-130			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Born Sitzman #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F0216 - EPA 5030 (soil)

Matrix Spike (B3F0216-MS1)	Source: Y305746-01			Prepared: 06/02/2023 Analyzed: 06/02/2023						
1,2,4-Trimethylbenzene	0.0596	0.00200	mg/kg	0.100	ND	59.6	70-130			QM-07
1,3,5-Trimethylbenzene	0.0614	0.00200	"	0.100	ND	61.4	70-130			QM-07
Benzene	0.0648	0.00200	"	0.100	ND	64.8	70-130			QM-07
Ethylbenzene	0.0569	0.00200	"	0.100	ND	56.9	70-130			QM-07
Naphthalene	0.0758	0.00380	"	0.100	ND	75.8	70-130			
Toluene	0.0602	0.00200	"	0.100	ND	60.2	70-130			QM-07
o-Xylene	0.0595	0.00200	"	0.100	ND	59.5	70-130			QM-07
m,p-Xylene	0.115	0.00400	"	0.200	ND	57.7	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		108	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.8	70-130			

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Martin C Eckert III
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 Project: Noble - Born Sitzman #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F0216 - EPA 5030 (soil)

Matrix Spike Dup (B3F0216-MSD1)	Source: Y305746-01			Prepared: 06/02/2023 Analyzed: 06/02/2023						
1,2,4-Trimethylbenzene	0.0711	0.00200	mg/kg	0.100	ND	71.1	70-130	17.6	20	
1,3,5-Trimethylbenzene	0.0736	0.00200	"	0.100	ND	73.6	70-130	18.1	20	
Benzene	0.0811	0.00200	"	0.100	ND	81.1	70-130	22.4	20	QR-03
Ethylbenzene	0.0708	0.00200	"	0.100	ND	70.8	70-130	21.8	20	QR-03
Naphthalene	0.0867	0.00380	"	0.100	ND	86.7	70-130	13.4	20	
Toluene	0.0751	0.00200	"	0.100	ND	75.1	70-130	22.0	20	QR-03
o-Xylene	0.0731	0.00200	"	0.100	ND	73.1	70-130	20.6	20	QR-03
m,p-Xylene	0.141	0.00400	"	0.200	ND	70.3	70-130	19.7	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.5	70-130			

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 Project: Noble - Born Sitzman #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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 B3E3114 - EPA 3580

Blank (B3E3114-BLK1)

Prepared: 05/31/2023 Analyzed: 05/31/2023

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: Nitrobenzene-d5	210		ug/kg	200		105	60-130			
Surrogate: 2-Fluorobiphenyl	200		"	200		100	60-130			
Surrogate: Terphenyl-d14	190		"	200		94.8	60-130			

LCS (B3E3114-BS1)

Prepared: 05/31/2023 Analyzed: 05/31/2023

Origins Laboratory, Inc.



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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Born Sitzman #2

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 B3E3114 - EPA 3580

LCS (B3E3114-BS1)

Prepared: 05/31/2023 Analyzed: 05/31/2023

1-Methylnaphthalene	0.189	0.002	mg/kg	0.200		94.4	70-130			
2-Methylnaphthalene	0.192	0.002	"	0.200		96.2	70-130			
Acenaphthene	0.187	0.020	"	0.200		93.3	70-130			
Anthracene	0.195	0.020	"	0.200		97.3	70-130			
Benzo (a) anthracene	0.193	0.005	"	0.200		96.4	70-130			
Benzo (a) pyrene	0.195	0.020	"	0.200		97.6	70-130			
Benzo (b) fluoranthene	0.197	0.020	"	0.200		98.4	70-130			
Benzo (g,h,i) perylene	0.209	0.020	"	0.200		104	70-130			
Benzo (k) fluoranthene	0.192	0.020	"	0.200		96.0	70-130			
Chrysene	0.186	0.020	"	0.200		93.2	70-130			
Dibenz (a,h) anthracene	0.204	0.020	"	0.200		102	70-130			
Fluoranthene	0.204	0.020	"	0.200		102	70-130			
Fluorene	0.186	0.020	"	0.200		92.8	70-130			
Indeno (1,2,3-cd) pyrene	0.209	0.020	"	0.200		104	70-130			
Naphthalene	0.194	0.002	"	0.200		97.0	70-130			
Phenanthrene	0.197	0.020	"	0.200		98.6	70-130			
Pyrene	0.194	0.020	"	0.200		96.8	70-130			
Surrogate: Nitrobenzene-d5	210		ug/kg	200		106	60-130			
Surrogate: 2-Fluorobiphenyl	200		"	200		100	60-130			
Surrogate: Terphenyl-d14	190		"	200		96.8	60-130			

Matrix Spike (B3E3114-MS1)

Source: Y305746-01

Prepared: 05/31/2023 Analyzed: 05/31/2023

1-Methylnaphthalene	0.191	0.002	mg/kg	0.200	ND	95.4	70-130			
2-Methylnaphthalene	0.196	0.002	"	0.200	ND	97.9	70-130			
Acenaphthene	0.187	0.020	"	0.200	ND	93.6	70-130			
Anthracene	0.187	0.020	"	0.200	ND	93.5	70-130			
Benzo (a) anthracene	0.204	0.005	"	0.200	ND	102	70-130			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Born Sitzman #2

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 B3E3114 - EPA 3580

Matrix Spike (B3E3114-MS1)		Source: Y305746-01			Prepared: 05/31/2023 Analyzed: 05/31/2023					
Benzo (a) pyrene	0.198	0.020	mg/kg	0.200	ND	98.8	70-130			
Benzo (b) fluoranthene	0.190	0.020	"	0.200	ND	95.2	70-130			
Benzo (g,h,i) perylene	0.204	0.020	"	0.200	ND	102	70-130			
Benzo (k) fluoranthene	0.192	0.020	"	0.200	ND	96.2	70-130			
Chrysene	0.198	0.020	"	0.200	ND	98.8	70-130			
Dibenz (a,h) anthracene	0.215	0.020	"	0.200	ND	107	70-130			
Fluoranthene	0.205	0.020	"	0.200	ND	103	70-130			
Fluorene	0.196	0.020	"	0.200	ND	98.2	70-130			
Indeno (1,2,3-cd) pyrene	0.207	0.020	"	0.200	ND	103	70-130			
Naphthalene	0.199	0.002	"	0.200	ND	99.6	70-130			
Phenanthrene	0.194	0.020	"	0.200	ND	96.8	70-130			
Pyrene	0.192	0.020	"	0.200	ND	96.2	70-130			
Surrogate: Nitrobenzene-d5	220		ug/kg	200		108	60-130			
Surrogate: 2-Fluorobiphenyl	200		"	200		101	60-130			
Surrogate: Terphenyl-dl4	200		"	200		98.5	60-130			

Matrix Spike Dup (B3E3114-MSD1)		Source: Y305746-01			Prepared: 05/31/2023 Analyzed: 05/31/2023					
1-Methylnaphthalene	0.189	0.002	mg/kg	0.200	ND	94.7	70-130	0.776	20	
2-Methylnaphthalene	0.193	0.002	"	0.200	ND	96.7	70-130	1.29	20	
Acenaphthene	0.187	0.020	"	0.200	ND	93.4	70-130	0.250	20	
Anthracene	0.194	0.020	"	0.200	ND	96.9	70-130	3.60	20	
Benzo (a) anthracene	0.200	0.005	"	0.200	ND	99.8	70-130	2.22	20	
Benzo (a) pyrene	0.198	0.020	"	0.200	ND	98.9	70-130	0.0579	20	
Benzo (b) fluoranthene	0.200	0.020	"	0.200	ND	100	70-130	4.93	20	
Benzo (g,h,i) perylene	0.205	0.020	"	0.200	ND	102	70-130	0.123	20	
Benzo (k) fluoranthene	0.200	0.020	"	0.200	ND	99.9	70-130	3.75	20	
Chrysene	0.203	0.020	"	0.200	ND	102	70-130	2.91	20	

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Born Sitzman #2

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 B3E3114 - EPA 3580

Matrix Spike Dup (B3E3114-MSD1)	Source: Y305746-01			Prepared: 05/31/2023 Analyzed: 05/31/2023						
Dibenz (a,h) anthracene	0.200	0.020	mg/kg	0.200	ND	99.8	70-130	7.28	20	
Fluoranthene	0.193	0.020	"	0.200	ND	96.5	70-130	6.09	20	
Fluorene	0.184	0.020	"	0.200	ND	91.9	70-130	6.68	20	
Indeno (1,2,3-cd) pyrene	0.219	0.020	"	0.200	ND	109	70-130	5.54	20	
Naphthalene	0.198	0.002	"	0.200	ND	98.8	70-130	0.862	20	
Phenanthrene	0.191	0.020	"	0.200	ND	95.3	70-130	1.53	20	
Pyrene	0.207	0.020	"	0.200	ND	104	70-130	7.50	20	
Surrogate: Nitrobenzene-d5	220		ug/kg	200		109	60-130			
Surrogate: 2-Fluorobiphenyl	200		"	200		99.4	60-130			
Surrogate: Terphenyl-dl4	210		"	200		107	60-130			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Born Sitzman #2

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 B3E3105 - Saturated Paste Metals

Blank (B3E3105-BLK1)

Prepared: 05/31/2023 Analyzed: 06/01/2023

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

Duplicate (B3E3105-DUP1)

Source: Y305740-01

Prepared: 05/31/2023 Analyzed: 06/01/2023

Calcium PPM	560	10.0	mg/L		559			0.277	50	
SAR	0.00		SAR		3.25			200	200	
Magnesium PPM	85.9	10.0	mg/L		87.8			2.15	50	
Sodium PPM	306	10.0	"		313			2.12	50	

Batch B3F0104 - DTPA Sorbitol Preparation

Blank (B3F0104-BLK1)

Prepared: 06/01/2023 Analyzed: 06/02/2023

Boron	ND	0.100	mg/L							
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Duplicate (B3F0104-DUP1)

Source: Y305746-01

Prepared: 06/01/2023 Analyzed: 06/02/2023

Boron	0.559	0.100	mg/L		0.534			4.54	50	
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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Born Sitzman #2

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 B3E3110 - Saturated Paste pH/EC

Duplicate (B3E3110-DUP1)	Source: Y305740-01			Prepared: 05/31/2023 Analyzed: 06/01/2023						
pH	7.43		pH Units		7.56			1.73	25	
Specific Conductance (EC)	3.81	0.00500	mmhos/cm		3.91			2.74	25	

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Wheat Ridge CO 80033

Martin C Eckert III
Project Number: [none]
Project: Noble - Born Sitzman #2

Notes and Definitions

U Sample is Non-Detect.

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

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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