

Wellhead Closure Checklist

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

Additional attachments (optional): <u> </u>	Pit Closure <u> </u>	Tank Battery Closure <u> </u>	Flowline Closure <u> </u>	Partially Buried Vault Closure <u> </u>
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Site Name & COGCC Facility Number: <u>Lindsay #C33-10</u>	Date: <u>11/03/22</u>	Remediation Project #: <u>24248</u>
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Associated Wells: <u>05-123-14698</u>	Age of Site: <u>Years</u>	Number of Photos Attached: <u>2</u>
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Location: (GPS coordinates of wellhead or southeastern most wellhead for multiple) <u>40.274540 / -104.563190</u>	Estimated Facility Size (acres): <u> </u>
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General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)
Good

USCS Soil Type: <u>SM</u>	Estimated Depth to Groundwater: <u>10-15'</u>
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Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)
None observed

Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)
None observed

Wellhead(s)						
Well API	<u>05-123-14698</u>					
Age	<u>Years</u>					
Condition of surface around wellhead	<u>Good per crew</u>					
PID Readings	<u>N/A - Excavated upon arrival</u>					
Condition of subsurface (at least 10 min)	<u>Good</u>					
PID Readings	<u>1.2</u>	<u>2.3</u>	<u>1.7</u>	<u>3.1</u>	<u>4.2</u>	
Sample taken? Location/Sample ID#	<u>WH-SS-01</u>	<u>WH-SS-02</u>	<u>WH-SS-03</u>	<u>WH-SS-04</u>	<u>WH-SS-01</u>	
Photo Number(s)	<u>See photo log</u>					

Other observations regarding wellheads:
Well casing cut/capped following assessment

Summary

Was impacted soil identified? No Yes - less than 10 cubic yards Yes - more than 10 cubic yards

Total number of samples field screened: <u>5</u>	Total number of samples collected: <u>5</u>
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Highest PID Reading: <u>4.2</u>	Total number of samples submitted to lab for analysis: <u>1</u>
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If more than 10 cubic yards of impacted soil were observed:

Vertical extent: <u> </u>	Estimated spill volume: <u> </u>
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Lateral extent: <u>N/A</u>	Volume of soil removed: <u> </u>
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Is additional investigation required?

Was groundwater encountered during the investigation? No Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils

Measured depth to groundwater: <u> </u>	Was remedial groundwater removal conducted? Yes No
--	--

Date Groundwater was encountered: <u> </u>	Commencement date of removal: <u> </u>
---	---

Sheen on groundwater? Yes No	Volume of groundwater removed prior to sampling: <u> </u>
--	--

Free product observed? Yes No	Volume of groundwater removed post sampling: <u> </u>
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Total number of samples collected: <u> </u>	Total Volume of groundwater removed: <u> </u>
--	--

Total number of samples submitted to lab for analysis: <u> </u>	
--	--

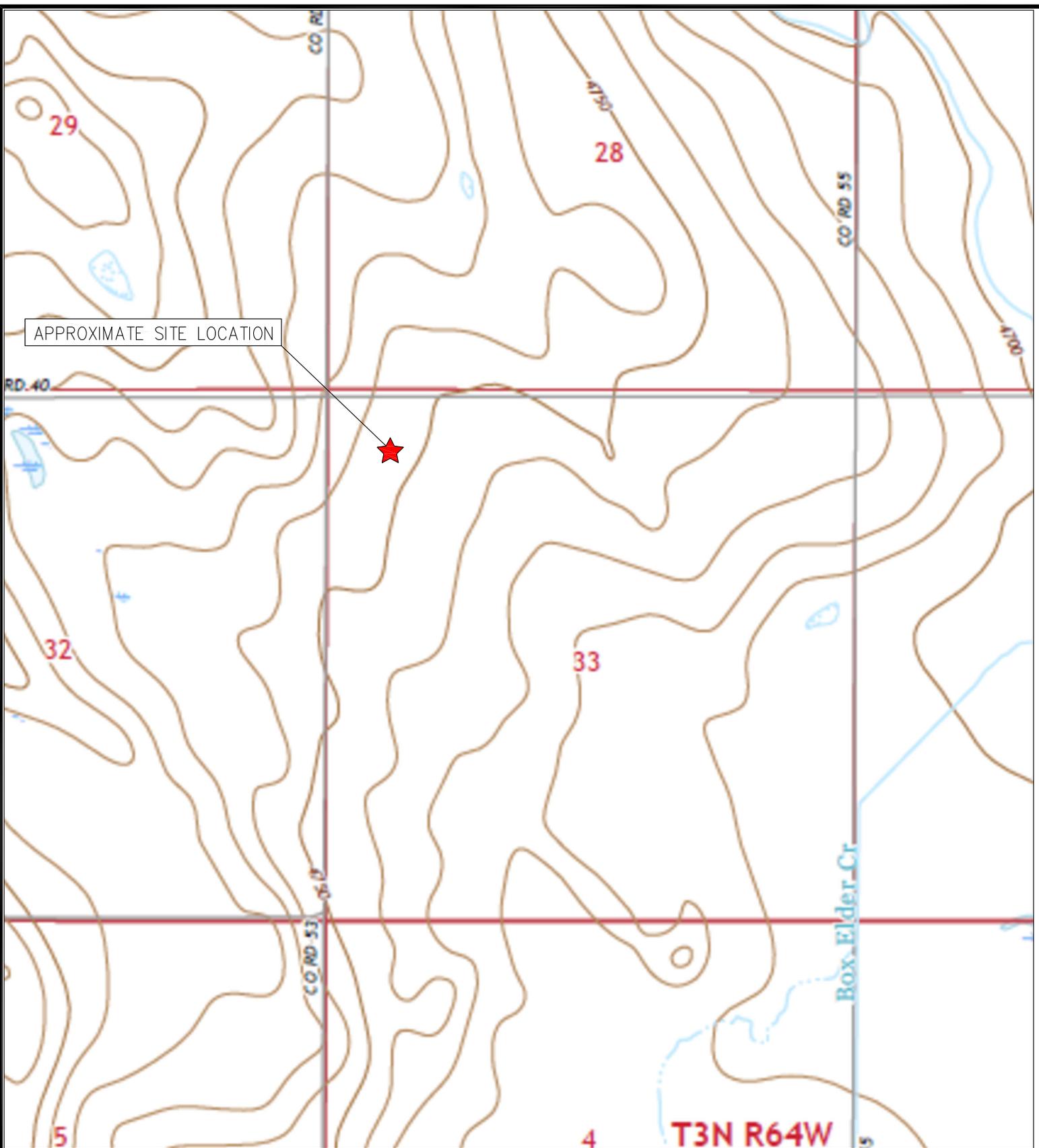


FIGURES

Figure 1: Topographic Site Location Map

Figure 2: Aerial Site Location Map

Figure 3: Soil Analytical Map



TOPOGRAPHIC SITE LOCATION MAP
 LINDSAY #C33-10
 CLOSURE ASSESSMENT
 40.274540 / -104.563190
 NW¼ NW¼ SEC.33 T4N R64W 6PM
 WELD COUNTY, COLORADO
 API # 05-123-14698
 REMEDIATION # 24248



EAGLE
 ENVIRONMENTAL
 CONSULTING, INC.

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

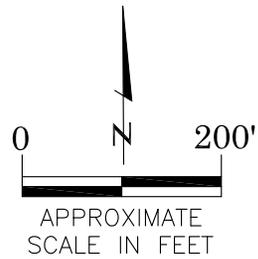
SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP,
 VALLEY VIEW SCHOOL, CO QUADRANGLE 2022

FIGURE 1



LEGEND

-  FORMER LINDSAY #C33-10 WELLHEAD (PLUGGED AND ABANDONED)
-  ASSOCIATED SEPARATOR
-  APPROXIMATE FLOWLINE LOCATION



AERIAL SITE LOCATION MAP

LINDSAY #C33-10
CLOSURE ASSESSMENT
40.274540 / -104.563190
NW¼ NW¼ SEC.33 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-14698
REMIEDIATION # 24248

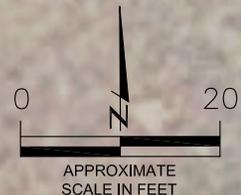
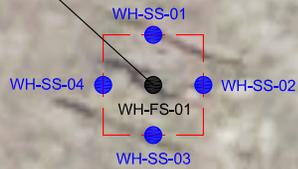
DRAWN BY:
CT

FIGURE NO.
2



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WH-FS-01@6'
11/03/22
6'
(BRL)



LEGEND

- WELLHEAD ASSESSMENT BOUNDARIES
- **SS-02** APPROXIMATE LOCATION OF SOIL SAMPLES FIELD SCREENED, ONLY, WITH PHOTOIONIZATION DETECTOR
- **SS-02** APPROXIMATE LOCATION OF SOIL SAMPLES SUBMITTED FOR LABORATORY ANALYSIS

PARAMETERS

SAMPLE LOCATION
DATE
DEPTH (FEET)
B = BENZENE (mg/kg)
T = TOLUENE (mg/kg)
E = ETHYLBENZENE (mg/kg)
X = TOTAL XYLENES (mg/kg)
G = TPH-GRO (mg/kg)
D = TPH-DRO (mg/kg)
R = TPH-RRO (mg/kg)
1,2,4-TMB = 1,2,4 TRIMETHYLBENZENE (mg/kg)
1,3,5-TMB = 1,3,5 TRIMETHYLBENZENE (mg/kg)
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (mg/kg)
Brn= BORON (mg/L)
EC = SPECIFIC CONDUCTANCE (mmhos/cm)
SAR= SODIUM ADSORPTION RATIO
pH = pH (pH UNITS)

mg/kg = MILLIGRAMS PER KILOGRAM
mg/L = MILLIGRAMS PER LITER
mmhos/cm = MILLIMHOS PER CENTIMETER

TPH-GRO = TOTAL PETROLEUM HYDROCARBONS - GASOLINE RANGE ORGANICS
TPH-DRO = TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS
TPH-RRO = TOTAL PETROLEUM HYDROCARBONS - RESIDUAL RANGE ORGANICS

(BRL) = ALL VALUES BELOW REGULATORY LIMITS

NOTES:
VALUES PRESENTED IN **BOLD** EXCEED COGCC TABLE 915-1 REGULATORY LIMITS.

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION

SOIL ANALYTICAL MAP
LINDSAY #C33-10
CLOSURE ASSESSMENT
40.274540 / -104.563190
NW¼ NW¼ SEC.33 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-14698
REMEDATION # 24248

DRAWN BY:
CT

FIGURE NO.
3



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TABLES

Table 1: Photoionization Detector Reading Summary

Table 2: Soil Analytical Results Summary

TABLE 1
PHOTOIONIZATION DETECTOR READING SUMMARY
LINDSAY #C33-10
CLOSURE ASSESSMENT
40.274540 / -104.563190
NW¼ NW¼ SEC.33 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-14698
REMEDIATION # 24248

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WH-SS-01 @ 5' (40.274548 / -104.563175)	11/03/22	5	1.2	N
WH-SS-02 @ 5' (40.274534 / -104.563159)	11/03/22	5	2.3	N
WH-SS-03 @ 5' (40.274524 / -104.563180)	11/03/22	5	1.7	N
WH-SS-04 @ 5' (40.274539 / -104.563196)	11/03/22	5	3.1	N
WH-FS-01 @ 6' (40.274536 / -104.563179)	11/03/22	6	4.2	Y

(Y/N) = Yes or No

ppm-v = parts per million by volume

PID = Photoionization Detector



TABLE 2
SOIL ANALYTICAL RESULTS SUMMARY
LINDSAY #C33-10
CLOSURE ASSESSMENT
40.274540 / -104.563190
NW¼ NW¼ SEC.33 T4N R64W 6PM
WELD COUNTY, COLORADO
API # 05-123-14698
REMEDIAION # 24248

Sample Location		WH-FS-01 @ 6'		
(Latitude / Longitude)		(40.274536 / -104.563179)		
Sample Date		11/3/2022		
Sample Depth		6'		
PID Reading (ppm-v)		4.2		
Regulatory Limits				
Chemical of Concern	Units	COGCC Table 915-1 RSSLs	COGCC Table 915-1 GSSLs	
VOCs				
Benzene	mg/kg	1.2	0.0026	<0.00200
Toluene	mg/kg	490	0.69	<0.00200
Ethylbenzene	mg/kg	5.8	0.78	<0.00200
Total Xylenes	mg/kg	58	9.9	<0.00200
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 Aromatics Hydrocarbons				
1-Methyl-naphthalene	mg/kg	18	0.006	<0.00549
2-Methyl-naphthalene	mg/kg	24	0.019	<0.0101
Acenaphthene	mg/kg	360	0.55	<0.00335
Anthracene	mg/kg	1800	5.8	<0.00335
Benzo(a)-anthracene	mg/kg	1.1	0.011	<0.00335
Benzo(a)-pyrene	mg/kg	0.11	0.24	<0.00335
Benzo(b)-fluoranthene	mg/kg	1.1	0.3	<0.00335
Benzo(k)-fluoranthene	mg/kg	11	2.9	<0.00335
Chrysene	mg/kg	110	9	<0.00335
Dibenzo(a,h)-anthracene	mg/kg	0.11	0.096	<0.00335
Fluoranthene	mg/kg	240	8.9	<0.00335
Fluorene	mg/kg	240	0.54	<0.00335
Indeno(1,2,3-cd)-pyrene	mg/kg	1.1	0.98	<0.00335
Pyrene	mg/kg	180	1.3	<0.00335
Soil Suitability (Inorganics)				
Boron	mg/L	2	--	0.375
pH	standard unit	6-8.3	--	8.19
Sodium Adsorption Ratio (SAR)	--	<6	--	0.980
Specific Conductance (EC)	mmhos/cm	<4	--	1.52
COGCC = Colorado Oil and Gas Conservation Commission mg/kg = milligrams per kilogram mmhos/cm = millimhos per centimeter PID = Photoionization Detector ppm-v = parts per million by volume mg/L = milligrams per liter Notes: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit and/or minimum detection limit. Values presented in BOLD exceed COGCC Table 915-1 Regulatory Limits.				



ATTACHMENT A

Photo Log

Lindsay #C33-10
API # 05-123-14698
Remediation # 24248

Closure Assessment

November 2022



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

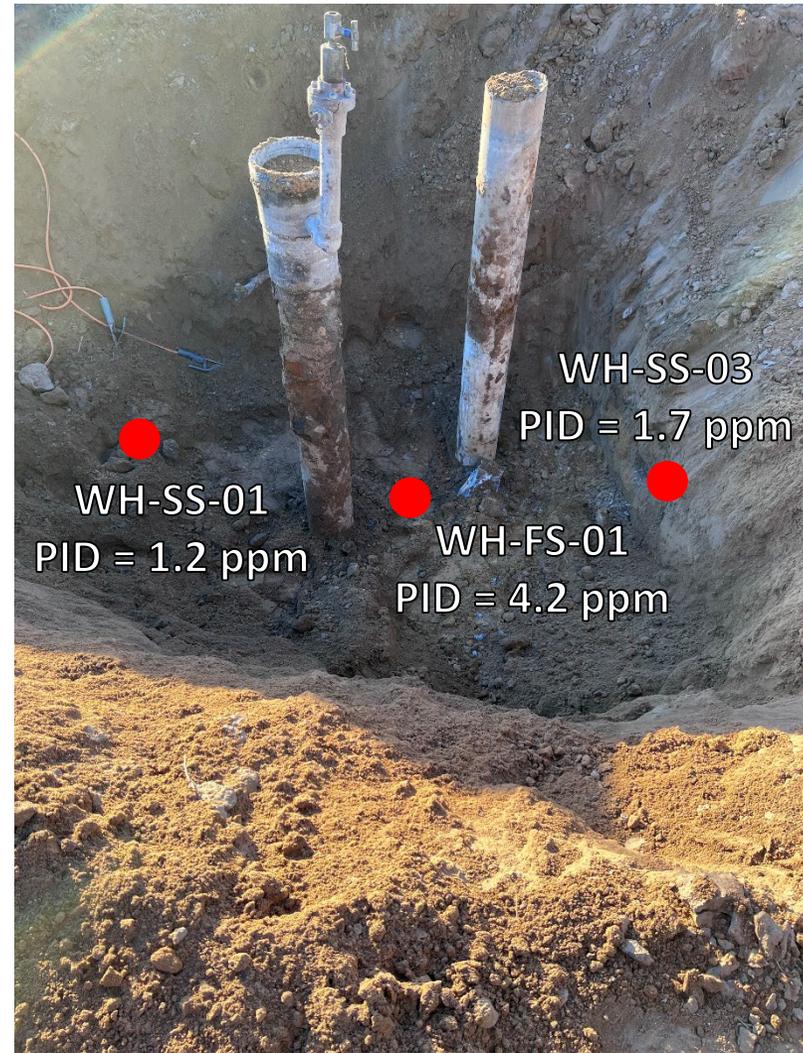


Wellhead Excavation – 11/03/22



Looking south

No petroleum hydrocarbon staining or odor observed



Looking east

No petroleum hydrocarbon staining or odor observed



ATTACHMENT B

Laboratory Analytical Report



November 16, 2022

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

Project Name - Noble - Lindsay #C33-10

Project Number - [none]

Attached are your analytical results for Noble - Lindsay #C33-10 received by Origins Laboratory, Inc. November 03, 2022. This project is associated with Origins project number Y211128-01.

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



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

Martin C Eckert III
Project Number: [none]
Project: Noble - Lindsay #C33-10

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-FS-01@6'	Y211128-01	Soil	November 3, 2022 8:16	11/03/2022 14:20

Origins Laboratory, Inc.



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

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

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lindsay #C33-10

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 721128

Client: Eagle Environmental
 Client Project ID: Lindsay #C33-10

Checklist Completed by: TSH/DE
 Date/time completed: 11/04/12

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

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

Water Other: _____

Cooler Number/Temperature: 1103 °C / _____ °C / _____ °C (Describe)

Thermometer ID: T004

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

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

Reviewed by: JIS (Project Manager)

Date/Time Reviewed: 11-7-12

Origins Laboratory, Inc.

J. Bynon

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

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

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lindsay #C33-10

WH-FS-01@6'
11/3/2022 8:16:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y211128-01 (Soil)

Boron (DTPA Sorbitol)

Boron	0.375		0.100	mg/L	1	B2K0806	11/08/2022	11/09/2022	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		25.0	mg/kg	1	B2K0426	11/04/2022	11/05/2022	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: o-Terphenyl	73.9 %		50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B2K0924	11/09/2022	11/10/2022	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, Inc.
 8000 W 44th Ave
 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lindsay #C33-10

WH-FS-01@6'
11/3/2022 8:16:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y211128-01 (Soil)

GBTEX+TMBs by 8260D

Surrogate: 1,2-Dichloroethane-d4	101 %		70-130			B2K09 24	11/09/2022	11/10/2022	
Surrogate: Toluene-d8	99.5 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	88.5 %		70-130			"	"	"	

Metals by Saturated Paste by EPA 6010

Calcium	ND		0.499	meq/L	10	[CALC]	11/10/2022	11/11/2022	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	0.736		0.435	"	"	"	"	"	

PAH by 8270D SIM

1-Methylnaphthalene	ND	0.00549	0.0101	mg/Kg	5	L647576	11/08/2022	11/08/2022	
2-Methylnaphthalene	ND	0.00972	0.0101	"	"	"	"	"	
Acenaphthene	ND	0.00152	0.00335	"	"	"	"	"	
Anthracene	ND	0.00167	0.00335	"	"	"	"	"	
Benzo(a)anthracene	ND	0.00247	0.00335	"	"	"	"	"	
Benzo(a)pyrene	ND	0.00234	0.00335	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.00293	0.00335	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.00219	0.00335	"	"	"	"	"	
Chrysene	ND	0.00312	0.00335	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.00307	0.00335	"	"	"	"	"	

Origins Laboratory, Inc.



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

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lindsay #C33-10

WH-FS-01@6'
11/3/2022 8:16:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, LLC.
Y211128-01 (Soil)

PAH by 8270D SIM

Fluoranthene	ND	0.00197	0.00335	mg/Kg	5	L647576	11/08/2022	11/08/2022	
Fluorene	ND	0.00143	0.00335	"	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.00314	0.00335	"	"	"	"	"	
Naphthalene	ND	0.0073	0.0101	"	"	"	"	"	
Pyrene	ND	0.00322	0.00335	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	50.3 %		33-115			"	"	"	
Surrogate: 4-Terphenyl-d14	57.8 %		33-122			"	"	"	
Surrogate: Nitrobenzene-d5	47 %		29-110			"	"	"	

pH in Soil by 9045D

pH	8.19			pH Units	1	B2K1013	11/10/2022	11/11/2022	
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SAR by 20B Saturated Paste

SAR	0.980			SAR	1	B2K1005	11/10/2022	11/11/2022	
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	1.52		0.00500	mmhos/cm	1	B2K1013	11/10/2022	11/11/2022	
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Origins Laboratory, Inc.



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

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lindsay #C33-10

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 B2K0426 - EPA 3580										
Blank (B2K0426-BLK1)										
					Prepared: 11/04/2022 Analyzed: 11/05/2022					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	25		"	24.9		101	50-150			

Origins Laboratory, Inc.



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 8000 W 44th Ave
 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lindsay #C33-10

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 B2K0426 - EPA 3580

LCS (B2K0426-BS1)

Prepared: 11/04/2022 Analyzed: 11/05/2022

Diesel (C10-C28)	829	50.0	mg/kg	1000		82.9	70-130			
Residual Range Organics (C28-C40)	708	200	"	1000		70.8	70-130			
Surrogate: o-Terphenyl	39		"	49.8		79.0	50-150			

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 Wheat Ridge CO 80033

Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lindsay #C33-10

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 B2K0426 - EPA 3580

Matrix Spike (B2K0426-MS1)	Source: Y211106-01			Prepared: 11/04/2022 Analyzed: 11/05/2022						
Diesel (C10-C28)	998	50.0	mg/kg	1000	ND	99.8	70-130			
Residual Range Organics (C28-C40)	847	200	"	1000	ND	84.7	70-130			
Surrogate: o-Terphenyl	42		"	49.8		85.0	50-150			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lindsay #C33-10

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 B2K0426 - EPA 3580

Matrix Spike Dup (B2K0426-MSD1)	Source: Y211106-01			Prepared: 11/04/2022 Analyzed: 11/05/2022						
Diesel (C10-C28)	1040	50.0	mg/kg	1000	ND	104	70-130	4.55	35	
Residual Range Organics (C28-C40)	875	200	"	1000	ND	87.5	70-130	3.32	35	
Surrogate: o-Terphenyl	53		"	49.8		106	50-150			

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Martin C Eckert III
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 Project: Noble - Lindsay #C33-10

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 B2K0924 - EPA 5030 (soil)

Blank (B2K0924-BLK1)

Prepared: 11/09/2022 Analyzed: 11/10/2022

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125	99.3		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	102		70-130			
Surrogate: 4-Bromofluorobenzene	0.10		"	0.125	80.8		70-130			

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 Project: Noble - Lindsay #C33-10

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 B2K0924 - EPA 5030 (soil)

LCS (B2K0924-BS1)

Prepared: 11/09/2022 Analyzed: 11/10/2022

1,2,4-Trimethylbenzene	0.107	0.00200	mg/kg	0.100		107	70-130			
1,3,5-Trimethylbenzene	0.110	0.00200	"	0.100		110	70-130			
Benzene	0.0912	0.00200	"	0.100		91.2	70-130			
Ethylbenzene	0.108	0.00200	"	0.100		108	70-130			
Naphthalene	0.110	0.00380	"	0.100		110	70-130			
Toluene	0.112	0.00200	"	0.100		112	70-130			
o-Xylene	0.104	0.00200	"	0.100		104	70-130			
m,p-Xylene	0.222	0.00400	"	0.200		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		97.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		96.4	70-130			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lindsay #C33-10

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 B2K0924 - EPA 5030 (soil)

Matrix Spike (B2K0924-MS1)	Source: Y211122-01			Prepared: 11/09/2022 Analyzed: 11/10/2022						
1,2,4-Trimethylbenzene	0.126	0.00200	mg/kg	0.100	ND	126	70-130			
1,3,5-Trimethylbenzene	0.126	0.00200	"	0.100	ND	126	70-130			
Benzene	0.118	0.00200	"	0.100	ND	118	70-130			
Ethylbenzene	0.132	0.00200	"	0.100	ND	132	70-130			QM-07
Naphthalene	0.128	0.00380	"	0.100	ND	128	70-130			
Toluene	0.137	0.00200	"	0.100	ND	137	70-130			QM-07
o-Xylene	0.126	0.00200	"	0.100	ND	126	70-130			
m,p-Xylene	0.270	0.00400	"	0.200	ND	135	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		95.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		93.0	70-130			

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 Project: Noble - Lindsay #C33-10

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 B2K0924 - EPA 5030 (soil)

Matrix Spike Dup (B2K0924-MSD1)	Source: Y211122-01			Prepared: 11/09/2022 Analyzed: 11/10/2022						
1,2,4-Trimethylbenzene	0.117	0.00200	mg/kg	0.100	ND	117	70-130	7.33	20	
1,3,5-Trimethylbenzene	0.120	0.00200	"	0.100	ND	120	70-130	4.90	20	
Benzene	0.102	0.00200	"	0.100	ND	102	70-130	14.8	20	
Ethylbenzene	0.122	0.00200	"	0.100	ND	122	70-130	8.37	20	
Naphthalene	0.123	0.00380	"	0.100	ND	123	70-130	3.99	20	
Toluene	0.123	0.00200	"	0.100	ND	123	70-130	10.1	20	
o-Xylene	0.115	0.00200	"	0.100	ND	115	70-130	8.76	20	
m,p-Xylene	0.251	0.00400	"	0.200	ND	126	70-130	7.22	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.9	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		95.1	70-130			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lindsay #C33-10

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B2K0806 - DTPA Sorbitol Preparation

Blank (B2K0806-BLK1)

Prepared: 11/08/2022 Analyzed: 11/09/2022

Boron ND 0.100 mg/L

Duplicate (B2K0806-DUP1)

Source: Y211106-04

Prepared: 11/08/2022 Analyzed: 11/09/2022

Boron 1.43 0.0998 mg/L 1.34 6.77 50

Batch B2K1005 - Saturated Paste Metals

Blank (B2K1005-BLK1)

Prepared: 11/10/2022 Analyzed: 11/11/2022

Calcium PPM ND 10.0 mg/L

SAR 0.00 SAR

Magnesium PPM ND 10.0 mg/L

Sodium PPM ND 10.0 "

Duplicate (B2K1005-DUP1)

Source: Y211128-01

Prepared: 11/10/2022 Analyzed: 11/11/2022

SAR 0.00 SAR 0.980 200 200

Calcium PPM 1.14 10.0 mg/L 6.09 137 50 QR-DUP

Magnesium PPM 0.206 10.0 " 1.03 192 50 QR-DUP

Sodium PPM 5.31 10.0 " 24.8 129 50 QR-DUP

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 Project: Noble - Lindsay #C33-10

Saturated Paste - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B2K1013 - Saturated Paste pH/EC										
Blank (B2K1013-BLK1)					Prepared: 11/10/2022 Analyzed: 11/11/2022					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							
Duplicate (B2K1013-DUP1)					Source: Y211128-01 Prepared: 11/10/2022 Analyzed: 11/11/2022					
pH	7.74		pH Units		8.19			5.65	25	
Specific Conductance (EC)	1.49	0.00500	mmhos/cm		1.52			1.94	25	

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 Project: Noble - Lindsay #C33-10

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 L647576 - 3550B

MSD (L 87575-MSD-L647576)	Source: 87575			Prepared: 11/08/2022 Analyzed: 11/08/2022						
2-Methylnaphthalene	0.0568	0.00201	mg/Kg	0.165	<0.00194	34.4	30-130	21.2	30	
Fluorene	0.0642	0.00067	"	0.165	<0.000286	38.9	30-130	13.2	30	
Pyrene	0.0606	0.00067	"	0.165	0.00156	35.7	30-130	18	30	
Indeno(1,2,3-cd)pyrene	0.0583	0.00067	"	0.165	<0.000627	35.3	30-130	18.5	30	
Fluoranthene	0.0664	0.00067	"	0.165	0.00137	39.4	30-130	11.2	30	
Dibenz(a,h)anthracene	0.0673	0.00067	"	0.165	<0.000614	40.7	30-130	21	30	
Chrysene	0.0632	0.00067	"	0.165	0.00124	37.5	30-130	17.2	30	
Naphthalene	0.0499	0.00201	"	0.165	<0.00145	30.2	30-130	29.9	30	
1-Methylnaphthalene	0.0582	0.00201	"	0.165	<0.00109	35.2	30-130	20.2	30	
Benzo(k)fluoranthene	0.0563	0.00067	"	0.165	<0.000437	34.1	30-130	11	30	
Acenaphthene	0.0597	0.00067	"	0.165	<0.000304	36.1	30-130	20.8	30	
Anthracene	0.0592	0.00067	"	0.165	<0.000334	35.8	30-130	21.1	30	
Benzo(a)anthracene	0.0656	0.00067	"	0.165	0.000768	39.2	30-130	14.6	30	
Benzo(a)pyrene	0.0641	0.00067	"	0.165	0.001	38.2	30-130	14.7	30	
Benzo(b)fluoranthene	0.0494	0.00067	"	0.165	0.00115	29.2	30-130	26	30	*
<hr/>										
Surrogate: 2-Fluorobiphenyl	40.3		"	0.33	147	40.3	33-115			
Surrogate: Nitrobenzene-d5	41.5		"	0.33	158	41.5	29-110			
Surrogate: 4-Terphenyl-d14	44.8		"	0.33	178	44.8	33-122			

MS (L 87575-MS-L647576)	Source: 87575			Prepared: 11/08/2022 Analyzed: 11/08/2022						
Benzo(k)fluoranthene	0.0629	0.00067	mg/Kg	0.165	<0.000437	38.1	30-130			
Acenaphthene	0.0736	0.00067	"	0.165	<0.000304	44.6	30-130			
Naphthalene	0.0675	0.00201	"	0.165	<0.00145	40.9	30-130			
Indeno(1,2,3-cd)pyrene	0.0702	0.00067	"	0.165	<0.000627	42.5	30-130			
Fluorene	0.0733	0.00067	"	0.165	<0.000286	44.4	30-130			
Fluoranthene	0.0743	0.00067	"	0.165	0.00137	44.2	30-130			
Dibenz(a,h)anthracene	0.0831	0.00067	"	0.165	<0.000614	50.3	30-130			

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Martin C Eckert III
 Project Number: [none]
 Project: Noble - Lindsay #C33-10

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 L647576 - 3550B

MS (L 87575-MS-L647576)	Source: 87575			Prepared: 11/08/2022 Analyzed: 11/08/2022						
Chrysene	0.0751	0.00067	mg/Kg	0.165	0.00124	44.7	30-130			
1-Methylnaphthalene	0.0713	0.00201	"	0.165	<0.00109	43.2	30-130			
Benzo(a)pyrene	0.0743	0.00067	"	0.165	0.001	44.4	30-130			
Anthracene	0.0732	0.00067	"	0.165	<0.000334	44.3	30-130			
Pyrene	0.0726	0.00067	"	0.165	0.00156	43	30-130			
2-Methylnaphthalene	0.0703	0.00201	"	0.165	<0.00194	42.6	30-130			
Benzo(b)fluoranthene	0.0642	0.00067	"	0.165	0.00115	38.2	30-130			
Benzo(a)anthracene	0.076	0.00067	"	0.165	0.000768	45.5	30-130			
Surrogate: Nitrobenzene-d5	41.5		"	0.33	158	41.5	29-110			
Surrogate: 4-Terphenyl-d14	50		"	0.33	178	50	33-122			
Surrogate: 2-Fluorobiphenyl	41.2		"	0.33	147	41.2	33-115			

LCS (LCS-L647576)	Prepared: 11/08/2022 Analyzed: 11/08/2022									
Chrysene	0.0899	0.00067	mg/Kg	0.167		53.8	30-130			
Dibenz(a,h)anthracene	0.102	0.00067	"	0.167		61	30-130			
Fluoranthene	0.0837	0.00067	"	0.167		50.1	30-130			
Fluorene	0.0843	0.00067	"	0.167		50.4	30-130			
Indeno(1,2,3-cd)pyrene	0.088	0.00067	"	0.167		52.6	30-130			
Naphthalene	0.0807	0.00201	"	0.167		48.3	30-130			
Benzo(k)fluoranthene	0.0708	0.00067	"	0.167		42.3	30-130			
Pyrene	0.0819	0.00067	"	0.167		49	30-130			
Benzo(a)pyrene	0.091	0.00067	"	0.167		54.4	30-130			
Benzo(a)anthracene	0.0918	0.00067	"	0.167		54.9	30-130			
Anthracene	0.0865	0.00067	"	0.167		51.7	30-130			
Acenaphthene	0.0839	0.00067	"	0.167		50.2	30-130			
2-Methylnaphthalene	0.0761	0.00201	"	0.167		45.5	30-130			
1-Methylnaphthalene	0.0784	0.00201	"	0.167		46.9	30-130			

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Martin C Eckert III
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 Project: Noble - Lindsay #C33-10

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 L647576 - 3550B

LCS (LCS-L647576)

Prepared: 11/08/2022 Analyzed: 11/08/2022

Benzo(b)fluoranthene	0.0709	0.00067	mg/Kg	0.167		42.4	30-130			
Surrogate: Nitrobenzene-d5	49.5		"	0.333		49.5	29-110			
Surrogate: 4-Terphenyl-d14	59.1		"	0.333		59.1	33-122			
Surrogate: 2-Fluorobiphenyl	51.6		"	0.333		51.6	33-115			

LRB (LRB-L647576)

Prepared: 11/08/2022 Analyzed: 11/08/2022

Chrysene	ND	0.00067	mg/Kg				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Naphthalene	ND	0.00201	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00201	"				-			
1-Methylnaphthalene	ND	0.00201	"				-			
Pyrene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	54.9		"	0.333		54.9	29-110			
Surrogate: 4-Terphenyl-d14	76.2		"	0.333		76.2	33-122			
Surrogate: 2-Fluorobiphenyl	63		"	0.333		63	33-115			

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Martin C Eckert III
Project Number: [none]
Project: Noble - Lindsay #C33-10

Notes and Definitions

U Sample is Non-Detect.

QR-DUP RPD exceeds QC acceptance criteria, this indicates source sample is not homogenous.

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

* 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.

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