

# Tank Battery Closure Checklist

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

Additional attachments (optional):		Pit Closure		Wellhead Closure 2-1-22		Flowline Closure 3-10-22		Partially Buried Vault Closure
Site Name & COGCC Facility Number: 328436		Date: Name: Duncan 3N-R64W-S11 Tank Battery						Remediation Project #: 21088
Associated Wells: 05-123-15986		Age of Site: years   Date: 3-10-22				Number of Photos Attached: 1		
Location: (GPS coordinates of southeaster berm) 40.241709 / -104.511448							Estimated Facility Size (acres):	
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.) <div style="text-align: center; font-size: 1.2em;">Good condition</div>								
USCS Soil Type: SW					Estimated Depth to Groundwater: > 20'			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) <div style="text-align: center; font-size: 1.2em;">None observed</div>								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth) <div style="text-align: center; font-size: 1.2em;">None observed</div>								
<b>Tanks (2)</b>								
Tank Contents	Crude	Produced water						
Size (barrels)	300	100						
Age	years	years						
Construction Material	Steel	Fiberglass						
Tank type (AST/IBL)	AST	AST						
Visual Integrity	Good	→						
Condition of tank	Good	→						
PID Readings	N/A	→						
Soil impacts present at valves or hatches?	None observed →							
PID Readings	0.7	3.7						
Sample taken? Location/ Sample ID#	TB-SS-01	WV-SS-01						
Photo Number(s)	see photo log							
Other observations regarding tanks: Produced water vault located above ground. Sample collected from produced water vault footprint.								
<b>Separators (1)</b>								
Separator size								
Vertical or Horizontal	Horizontal							
Age	years							
Soil impacts	None observed							
PID Readings	3.6	3.4						
Sample taken? Location/ Sample ID#	TB-SS-02	TB-22-03						
Photo Number(s)	See photo log							
Other observations regarding separators								
<b>Third Party Equipment (1)</b>								
Type	Meter House							
Age	years							

Third Party	DCP								
Removal Date	TBD								
Sample taken?	TB-SS-04								
PID Readings	1.1								
Photo Number(s)	See photo log								
<b>Other Facility Equipment (0)</b>									
Equipment type									
Equipment Condition									
Age									
Soil impacts	N/A								
PID Readings									
Sample taken?									
Photo Number(s)									
Other observations regarding other facility or third party equipment:									
<b>Summary</b>									
Was impacted soil identified?									
(No) Yes - less than 10 cubic yards Yes - more than 10 cubic yards									
Total number of samples field screened: 5					Total number of samples collected: 5				
Highest PID Reading: 3.7					Total number of samples submitted to lab for analysis: 3				
If more than 10 cubic yards of impacted soil were observed:									
Vertical extent:					Estimated spill volume:				
Lateral extent:					Volume of soil removed:				
Is additional investigation required?									
Was groundwater encountered during the investigation?									
(No) Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils									
Measured depth to groundwater:					Was remedial groundwater removal conducted? Yes No				
Date Groundwater was encountered:					Commencement date of removal:				
Seen 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:									



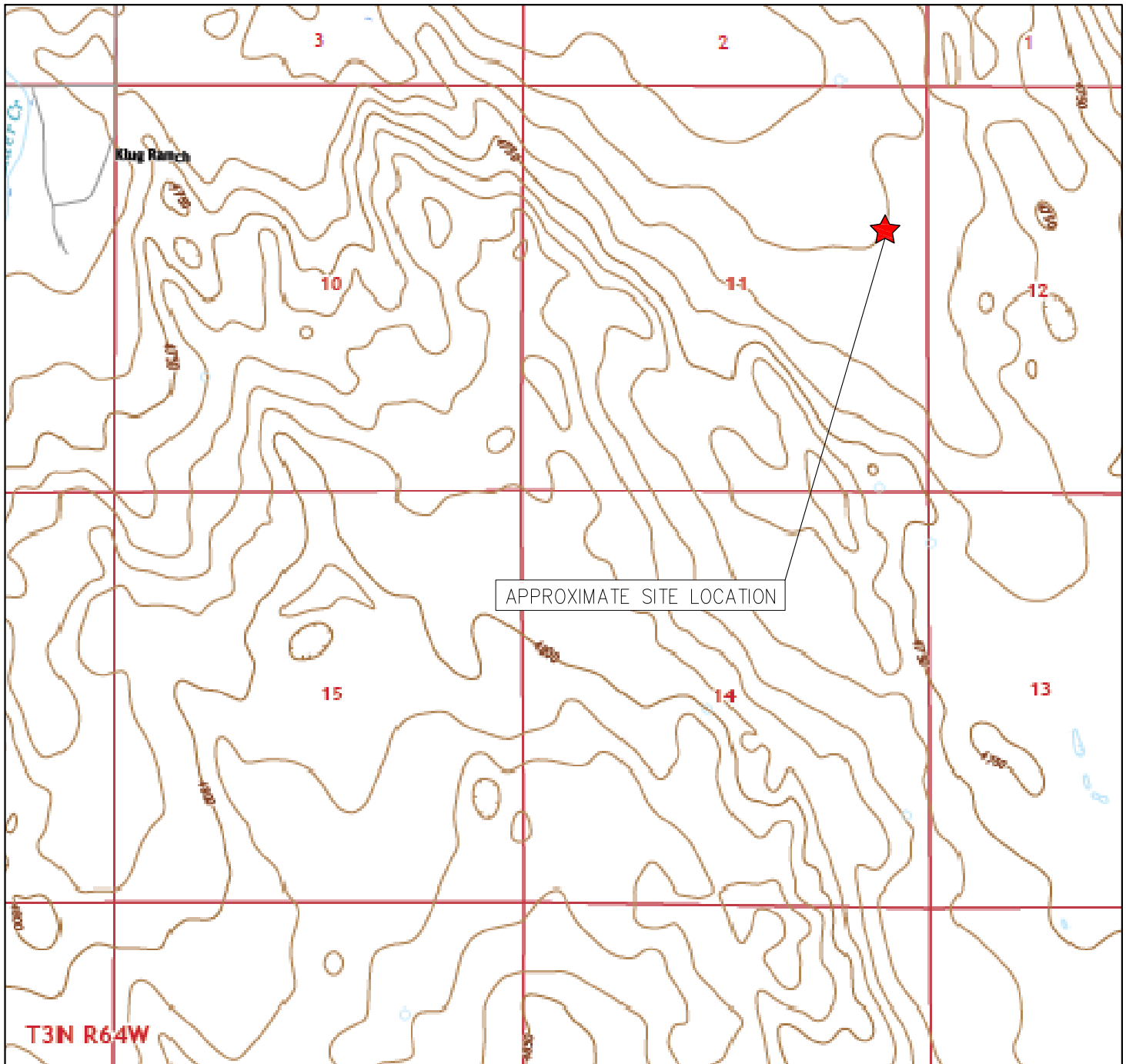
## **FIGURES**

**Figure 1: Topographic Site Location Map**

**Figure 2: Aerial Site Location Map**

**Figure 3: Soil Analytical Map**

**Figure 4: Polycyclic Aromatic Hydrocarbons Map**



TOPOGRAPHIC SITE LOCATION MAP  
 DUNCAN 3N-R64W-S11 TANK BATTERY  
 CLOSURE ASSESSMENT  
 40.241709 / -104.511448  
 SE¼ NE¼ SEC.11 T3N R64W 6PM  
 WELD COUNTY, COLORADO  
 LOCATION ID 328436  
 REMEDIATION # 21088



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 CONSULTING, INC.

8000 W 44th Ave, Wheat Ridge, CO 80033  
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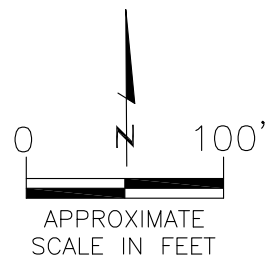
SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP  
 KLUG RANCH, CO QUADRANGLE 2022

FIGURE 1



# LEGEND

- FORMER DUNCAN 3N-R64W-S11 TANK BATTERY BOUNDARIES (DECOMMISSIONED)
- FORMER WATER VAULT LOCATION (REMOVED)
- FORMER SEPARATOR CONTAINMENT AREA (DECOMMISSIONED)



AERIAL SITE LOCATION MAP  
 DUNCAN 3N-R64W-S11 TANK BATTERY  
 CLOSURE ASSESSMENT  
 40.241709 / -104.511448  
 SE¼ NE¼ SEC.11 T3N R64W 6PM  
 WELD COUNTY, COLORADO  
 LOCATION ID 328436  
 REMEDIATION # 21088

DATE: 10/14/22

FIG. NO.  
2

DRAWN BY:  
KM



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TB-SS-02@2'  
03/10/22  
2'  
B = <0.00200  
T = <0.00200  
E = <0.00200  
X = <0.00200  
G = <0.200  
D = <25.0  
R = <100  
1,2,4-TMB = <0.00200  
1,3,5-TMB = <0.00200  
Brn = 0.339  
EC = 0.463  
SAR = 0.144  
pH = 8.25

WV-SS-01@0.5'  
03/10/22  
0.5'  
B = <0.00200  
T = <0.00200  
E = <0.00200  
X = <0.00200  
G = <0.200  
D = <25.0  
R = <100  
1,2,4-TMB = <0.00200  
1,3,5-TMB = <0.00200  
Brn = 0.139  
EC = 0.376  
SAR = 0.329  
pH = 8.07

TB-SS-01@0.5'  
03/10/22  
0.5'  
B = <0.00200  
T = <0.00200  
E = <0.00200  
X = <0.00200  
G = <0.200  
D = <25.0  
R = <100  
1,2,4-TMB = <0.00200  
1,3,5-TMB = <0.00200  
Brn = 0.462  
EC = 0.476  
SAR = 0.384  
pH = 8.14

LEGEND

- 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)

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

NOTES:  
VALUES PRESENTED WITH A LESS THAN SYMBOL (<) DID NOT CONTAIN CONCENTRATIONS AT OR ABOVE LABORATORY DETECTION LIMITS

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

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION

SOIL ANALYTICAL MAP  
DUNCAN 3N-R64W-S11 TANK BATTERY  
CLOSURE ASSESSMENT  
40.241709 / -104.511448  
SE 1/4 NE 1/4 SEC.11 T3N R64W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 328436  
REMIATION # 21088

DATE:  
10/14/22  
DRAWN BY:  
KM  
FIG.  
NO. 3



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TB-SS-02@2'  
03/10/22  
2'  
ND = <0.00067  
1-Methylnaphthalene = 0.00213  
2-Methylnaphthalene = 0.00348  
Acenaphthene = ND  
Anthracene = ND  
Benzo(a)anthracene = ND  
Benzo(a)pyrene = ND  
Benzo(b)fluoranthene = ND  
Benzo(k)fluoranthene = ND  
Chrysene = ND  
Dibenzo(a,h)anthracene = ND  
Fluoranthene = ND  
Fluorene = 0.000532  
Indeno(1,2,3-CD)pyrene = ND  
Naphthalene = ND  
Pyrene = ND

TB-SS-01@0.5'  
03/10/22  
0.5'  
ND = <0.00067  
1-Methylnaphthalene = 0.000826  
2-Methylnaphthalene = 0.00149  
Acenaphthene = ND  
Anthracene = ND  
Benzo(a)anthracene = ND  
Benzo(a)pyrene = ND  
Benzo(b)fluoranthene = ND  
Benzo(k)fluoranthene = ND  
Chrysene = ND  
Dibenzo(a,h)anthracene = ND  
Fluoranthene = ND  
Fluorene = 0.000459  
Indeno(1,2,3-CD)pyrene = ND  
Naphthalene = ND  
Pyrene = ND

WV-SS-01@0.5'  
03/10/22  
0.5'  
ND = <0.00067  
1-Methylnaphthalene = 0.00212  
2-Methylnaphthalene = 0.00337  
Acenaphthene = 0.000722  
Anthracene = ND  
Benzo(a)anthracene = 0.00155  
Benzo(a)pyrene = 0.00236  
Benzo(b)fluoranthene = 0.00208  
Benzo(k)fluoranthene = 0.00191  
Chrysene = 0.00242  
Dibenzo(a,h)anthracene = 0.00384  
Fluoranthene = 0.000579  
Fluorene = 0.00217  
Indeno(1,2,3-CD)pyrene = 0.00356  
Naphthalene = ND  
Pyrene = 0.000984

# LEGEND

- 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 SAMPLE COLLECTED  
APPROXIMATE DEPTH

POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

NOTE:  
CONCENTRATIONS PRESENTED IN mg/kg

mg/kg = MILLIGRAMS PER KILOGRAM

ND = NON-DETECT

NOTE:  
VALUES PRESENTED WITH A LESS THAN SYMBOL (<) DID NOT CONTAIN CONCENTRATIONS AT OR ABOVE LABORATORY DETECTION LIMITS

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

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION

POLYCYCLIC AROMATIC HYDROCARBONS MAP  
DUNCAN 3N-R64W-S11 TANK BATTERY  
CLOSURE ASSESSMENT  
40.241709 / -104.511448  
SE¼ NE¼ SEC.11 T3N R64W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 328436  
REMEDIATION # 21088

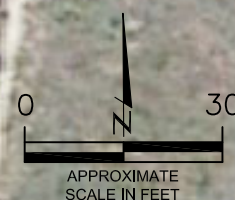
DATE:  
10/14/22

DRAWN BY:  
KM

FIG.  
NO. 4



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## **TABLES**

**Table 1: Photoionization Detector Reading Summary**

**Table 2: Soil Analytical Results Summary**

**Table 3: Polycyclic Aromatic Hydrocarbons Analytical Results Summary**



TABLE 1  
PHOTOIONIZATION DETECTOR READING SUMMARY  
DUNCAN 3N-R64W-S11 TANK BATTERY  
CLOSURE ASSESSMENT  
40.241709 / -104.511448  
SE1/4 NE1/4 SEC.11 T3N R64W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 328436  
REMEDATION # 21088

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Lab Submission (Y/N)
WV-SS-01 @ 0.5' (40.241457 / -104.511311)	03/10/22	0.5	3.7	Y
TB-SS-01 @ 0.5' (40.241444 / -104.511377)	03/10/22	0.5	0.7	Y
TB-SS-02 @ 2' (40.241707 / -104.511476)	03/10/22	2	3.6	Y
TB-SS-03 @ 3' (40.241719 / -104.511442)	03/10/22	3	3.4	N
TB-SS-04 @ 0.5 (40.241726 / -104.511403)	03/10/22	0.5	1.1	N
(Y/N) = Yes or No ppm-v = parts per million by volume PID = photoionization detector				

TABLE 2  
SOIL ANALYTICAL RESULTS SUMMARY  
DUNCAN 3N-R64W-S11 TANK BATTERY  
CLOSURE ASSESSMENT  
40.241709 / -104.511448  
SE1/4 NE1/4 SEC.11 T3N R64W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 328436  
REMEDATION # 21088

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm-v)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-RRO (mg/kg)	1,2,4-TMB (mg/kg)	1,3,5-TMB (mg/kg)	Boron (mg/L)	Specific Conductance (mmhos/cm)	pH (pH units)	SAR
COGCC Table 915-1 Residential Screening Levels (mg/kg)				1.20	490	5.8	58	500			30	27	2	<4	6-8.3	<6
COGCC Table 915-1 Protection of Groundwater Soil Screening Levels				0.0026	0.69	0.78	9.9	--			0.0081	0.0087	--	--	--	--
WV-SS-01 @ 0.5' (40.241457 / -104.511311)	03/10/22	0.5	3.7	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200	0.139	0.376	8.07	0.329
TB-SS-01 @ 0.5' (40.241444 / -104.511377)	03/10/22	0.5	0.7	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200	0.462	0.476	8.14	0.384
TB-SS-02 @ 2' (40.241707 / -104.511476)	03/10/22	2	3.6	<0.00200	<0.00200	<0.00200	<0.00200	<0.200	<25.0	<100	<0.00200	<0.00200	0.339	0.463	8.25	0.144
COGCC = Colorado Oil and Gas Conservation Commission mg/kg = milligrams per kilogram mmhos/cm = millimhos per centimeter PID = Photoionization Detector ppm-v = parts per million by volume mg/L = milligrams per liter SAR = Sodium Adsorption Ratio Note: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory MDL and/or reporting limit. Note: Values presented in <b>BOLD</b> contained concentrations exceeding COGCC Table 915-1 Regulatory Limits.																
				TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics				1,2,4-TMB = 1,2,4-Trimethlybenzene				MDL = Minimum Detection Limits				
				TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics				1,3,5-TMB = 1,3,5-Trimethlybenzene								
				TPH-RRO = Total Petroleum Hydrocarbons - Residual Range Organics												

TABLE 3  
PAH ANALYTICAL RESULTS SUMMARY  
DUNCAN 3N-R64W-S11 TANK BATTERY  
CLOSURE ASSESSMENT  
40.241709 / -104.511448  
SE1/4 NE1/4 SEC.11 T3N R64W 6PM  
WELD COUNTY, COLORADO  
LOCATION ID 328436  
REMEDATION # 21088

Sample Location (Latitude/Longitude)	Date	Approximate Depth (feet)	PID Reading (ppm- v)	1-Methyl- naphthalene (mg/kg)	2-Methyl- naphthalene (mg/kg)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo(a)-anthracene (mg/kg)	Benzo(a)- pyrene (mg/kg)	Benzo(b)- fluoranthene (mg/kg)	Benzo(k)- fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo(a,h)- anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(1,2,3- cd)-pyrene (mg/kg)	Naphthalene (mg/kg)	Pyrene (mg/kg)
COGCC Table 915-1 Residential Screening Levels				18	24	360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	2	180
COGCC Table 915-1 Protection of Groundwater Soil Screening Levels				0.006	0.019	0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	0.0038	1.3
WV-SS-01 @ 0.5' (40.241457 / -104.511311)	03/10/22	0.5	3.7	0.00212	0.00337	0.000722	<0.00067	0.00155	0.00236	0.00208	0.00191	0.00242	0.00384	0.000579	0.00217	0.00356	<0.00067	0.000984
TB-SS-01 @ 0.5' (40.241444 / -104.511377)	03/10/22	0.5	0.7	0.000826	0.00149	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.000459	<0.00067	<0.00067	<0.00067
TB-SS-02 @ 2' (40.241707 / -104.511476)	03/10/22	2	3.6	0.00213	0.00348	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	<0.00067	0.000532	<0.00067	<0.00067	<0.00067
COGCC = Colorado Oil and Gas Conservation Commission PAH = Polycyclic Aromatic Hydrocarbons mg/kg = milligrams per kilogram                      ppm-v = parts per million by volume                      PID = Photoionization Detector Note: Values presented with a less than symbol (<) did not contain concentrations at or above the laboratory reporting limit. Note: Values presented in <b>BOLD</b> contained concentrations exceeding COGCC Table 915-1 Regulatory Limits. Values with asterisk (*) exceed COGCC Table 915-1 protection of groundwater soil screening levels for that compound																		



## **ATTACHMENT A**

### **Photo Log**

# Duncan 3N-R64W-S11 Tank Battery

## Location ID 328436

## Remediation # 21088

Closure Assessment

March 2022

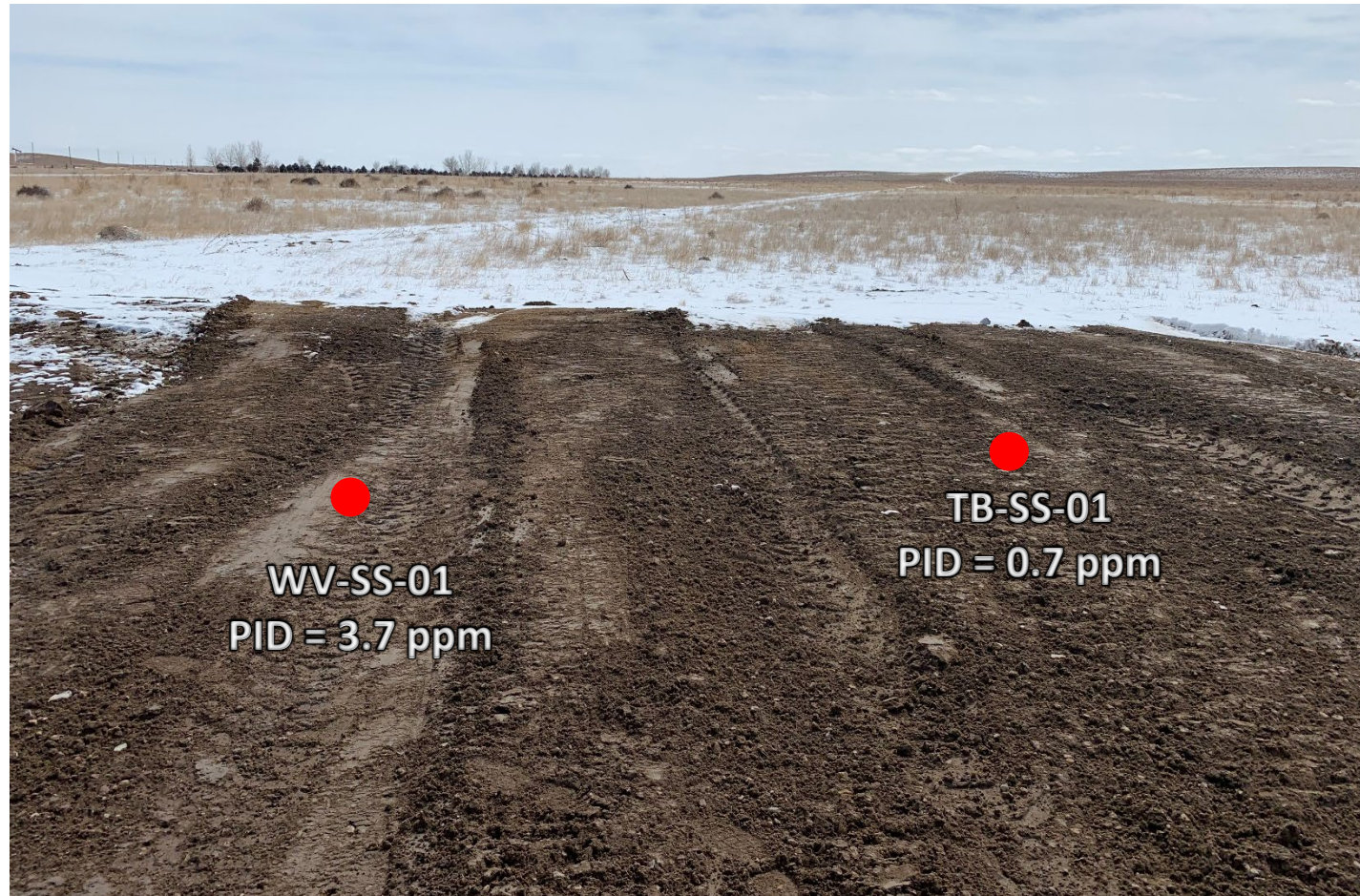


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# Tank Battery Decommissioning – 03/10/22



Looking at south at former produced water vault and production tank footprints

No petroleum hydrocarbon staining or odor observed



# Tank Battery Decommissioning – 03/10/22



Looking west at flowline to separator connection

No petroleum hydrocarbon odor or staining observed



Looking east at dumpline to separator connection

No petroleum hydrocarbon odor or staining observed



# Tank Battery Decommissioning – 03/10/22



Looking south at meter house connection

No petroleum hydrocarbon odor or staining observed



## **ATTACHMENT B**

### **Laboratory Analytical Report**



March 22, 2022

Eagle Environmental Consulting, Inc.

Martin C Eckert III

8000 W 44th Ave

Wheat Ridge CO 80033

**Project Name - Noble - Duncan 3N-64W-S11 TB      Project Number - [none]**

Attached are your analytical results for Noble - Duncan 3N-64W-S11 TB received by Origins Laboratory, Inc. March 10, 2022. This project is associated with Origins project number Y203283-01.

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

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

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

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

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

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



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



Eagle Environmental Consulting, Inc.

8000 W 44th Ave

Wheat Ridge CO 80033

Martin C Eckert III

Project Number: [none]

Project: Noble - Duncan 3N-64W-S11 TB

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WV-SS-01@0.5'	Y203283-01	Soil	March 10, 2022 12:45	03/10/2022 15:10
TB-SS-01@0.5'	Y203283-02	Soil	March 10, 2022 12:47	03/10/2022 15:10
TB-SS-02@2'	Y203283-03	Soil	March 10, 2022 12:51	03/10/2022 15:10

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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

www.originslaboratory.com

1203283

Project Manager: Martin Eckert III  
Project Name: Duncan 3N-64W-S11 Tube Battery  
Project Number:                       
Samples Collected By: RH

Client: Eagle Env. Consulting  
Address: 8000 W 44th Ave  
Wheat Ridge, CO 80033  
Telephone Number: 303-433-0479  
Email Address: MCE@eagle-env.com

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix		Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil		
3N-SS-01 @ 0.5'	3/10/22	1245	2	X				X		GC, Sph. ppt. - extracted	1
TB-SS-01 @ 0.5'	↓	1247	↓	↓				↓		more prep	2
TB-SS-02 @ 0.5'	↓	1251	↓	↓				↓		more prep	3
										more prep	4
											5
											6
											7
											8
											9
											10

Relinquished By: [Signature] Date: 3/10/22 Time: 1506

Relinquished By: [Signature] Date: 3/10/22 Time: 1510

Received By: YH Date: 3/10/22 Time: 1510

Received By:                      Date:                      Time:

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

Temp Received: 4.1 Date Results Needed: 3/10/22

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 - Duncan 3N-64W-S11 TB

Origins Laboratory

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

### Sample Receipt Checklist

Origins Work Order: 403283 Client: Eagle  
Client Project ID: Duncan 3N-64W-S11

Checklist Completed by: KEH Shipped Via: HD  
Date/time completed: 3/11/22 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
Airbill #: NA

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

Cooler Number/Temperature: 1 / 4.1 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C / \_\_\_\_\_ °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"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<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) MD Date/Time Reviewed 3/14/22

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 - Duncan 3N-64W-S11 TB

WV-SS-01@0.5'

3/10/2022 12:45:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y203283-01 (Soil)

## Boron (DTPA Sorbitol)

Boron	0.139	0.0992	mg/L	1	B2C1106	03/11/2022	03/14/2022	
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## DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2C1111	03/11/2022	03/15/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	71.5 %	50-150	"	"	"	"	"
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## GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2C1202	03/12/2022	03/12/2022	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	U
Benzene	ND	0.00200	"	"	"	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	"	"	U
Toluene	ND	0.00200	"	"	"	"	"	U
Xylenes, total	ND	0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130	"	"	"	"	"
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Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

WV-SS-01@0.5'

3/10/2022 12:45:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y203283-01 (Soil)

## GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	93.2 %	70-130	B2C12 02	03/12/2022	03/12/2022
Surrogate: 4-Bromofluorobenzene	96.7 %	70-130	"	"	"

## Metals by Saturated Paste by EPA 6010

Calcium	1.51	0.499	meq/L	10	[CALC]	03/11/2022	03/14/2022
Magnesium	1.20	0.823	"	"	"	"	"
Sodium	ND	0.435	"	"	"	"	"

## PAH by 8270D SIM

1-Methylnaphthalene	0.00212	0.000364	0.00067	mg/Kg	1	L605352	03/17/2022	03/17/2022
2-Methylnaphthalene	0.00337	0.000645	0.00067	"	"	"	"	"
Acenaphthene	0.000722	0.000304	0.00067	"	"	"	"	"
Anthracene	ND	0.000334	0.00067	"	"	"	"	"
Benzo(a)anthracene	0.00155	0.000493	0.00067	"	"	"	"	"
Benzo(a)pyrene	0.00236	0.000468	0.00067	"	"	"	"	"
Benzo(b)fluoranthene	0.00208	0.000585	0.00067	"	"	"	"	"
Benzo(k)fluoranthene	0.00191	0.000437	0.00067	"	"	"	"	"
Chrysene	0.00242	0.000624	0.00067	"	"	"	"	"
Dibenz(a,h)anthracene	0.00384	0.000614	0.00067	"	"	"	"	"
Fluoranthene	0.000579	0.000394	0.00067	"	"	"	"	"
Fluorene	0.00217	0.000286	0.00067	"	"	"	"	"
Indeno(1,2,3-cd)pyrene	0.00356	0.000627	0.00067	"	"	"	"	"

Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

WV-SS-01@0.5'

3/10/2022 12:45:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, Inc.  
Y203283-01 (Soil)

## PAH by 8270D SIM

Naphthalene	ND	0.000484	0.00067	mg/Kg	1	L605352	03/17/2022	03/17/2022
Pyrene	0.000984	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	57.1 %		33-115			"	"	"
Surrogate: 4-Terphenyl-d14	60.7 %		33-122			"	"	"
Surrogate: Nitrobenzene-d5	46.2 %		29-110			"	"	"

## pH in Soil by 9045D

pH	8.07			pH Units	1	B2C1115	03/11/2022	03/12/2022
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## SAR by 20B Saturated Paste

SAR	0.329			SAR	1	B2C1113	03/11/2022	03/14/2022
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## Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.376		0.00500	mmhos/cm	1	B2C1114	03/11/2022	03/12/2022
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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 - Duncan 3N-64W-S11 TB

TB-SS-01@0.5'

3/10/2022 12:47:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y203283-02 (Soil)

## Boron (DTPA Sorbitol)

Boron	0.462	0.100	mg/L	1	B2C1403	03/14/2022	03/15/2022	
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## DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2C1111	03/11/2022	03/15/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	69.7 %	50-150	"	"	"	"	"
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## GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2C1202	03/12/2022	03/12/2022	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	U
Benzene	ND	0.00200	"	"	"	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	"	"	U
Toluene	ND	0.00200	"	"	"	"	"	U
Xylenes, total	ND	0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130	"	"	"	"	"
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Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

TB-SS-01@0.5'

3/10/2022 12:47:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y203283-02 (Soil)

## GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	93.8 %	70-130	B2C12 02	03/12/2022	03/12/2022
Surrogate: 4-Bromofluorobenzene	97.3 %	70-130	"	"	"

## Metals by Saturated Paste by EPA 6010

Calcium	1.85	0.499	meq/L	10	[CALC]	03/11/2022	03/14/2022
Magnesium	1.97	0.823	"	"	"	"	"
Sodium	0.531	0.435	"	"	"	"	"

## PAH by 8270D SIM

1-Methylnaphthalene	0.000826	0.000364	0.00067	mg/Kg	1	L605352	03/17/2022	03/17/2022
2-Methylnaphthalene	0.00149	0.000645	0.00067	"	"	"	"	"
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"
Anthracene	ND	0.000334	0.00067	"	"	"	"	"
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"
Chrysene	ND	0.000624	0.00067	"	"	"	"	"
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"
Fluorene	0.000459	0.000286	0.00067	"	"	"	"	"

J

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 - Duncan 3N-64W-S11 TB

TB-SS-01@0.5'

3/10/2022 12:47:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Waypoint Analytical, Inc.  
Y203283-02 (Soil)

## PAH by 8270D SIM

Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	mg/Kg	1	L605352	03/17/2022	03/17/2022
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"
Pyrene	ND	0.000643	0.00067	"	"	"	"	"

Surrogate: 2-Fluorobiphenyl	62.8 %	33-115	"	"	"
Surrogate: 4-Terphenyl-d14	62.2 %	33-122	"	"	"
Surrogate: Nitrobenzene-d5	52 %	29-110	"	"	"

## pH in Soil by 9045D

pH	8.14	pH Units	1	B2C1115	03/11/2022	03/12/2022
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## SAR by 20B Saturated Paste

SAR	0.384	SAR	1	B2C1113	03/11/2022	03/14/2022
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## Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.476	0.00500	mmhos/cm	1	B2C1114	03/11/2022	03/12/2022
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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 - Duncan 3N-64W-S11 TB

TB-SS-02@2'

3/10/2022 12:51:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y203283-03 (Soil)

## Boron (DTPA Sorbitol)

Boron	0.339	0.0997	mg/L	1	B2C1403	03/14/2022	03/15/2022	
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## DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B2C1111	03/11/2022	03/15/2022	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	69.4 %	50-150	"	"	"
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## GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg	1	B2C1202	03/12/2022	03/12/2022	U
1,3,5-Trimethylbenzene	ND	0.00200	"	"	"	"	"	U
Benzene	ND	0.00200	"	"	"	"	"	U
Ethylbenzene	ND	0.00200	"	"	"	"	"	U
Toluene	ND	0.00200	"	"	"	"	"	U
Xylenes, total	ND	0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND	0.200	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130	"	"	"
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Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

TB-SS-02@2'

3/10/2022 12:51:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y203283-03 (Soil)

## GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	93.5 %	70-130				B2C12 02	03/12/2022	03/12/2022	
Surrogate: 4-Bromofluorobenzene	97.2 %	70-130				"	"	"	

## Metals by Saturated Paste by EPA 6010

Calcium	1.75	0.499	meq/L	10	[CALC]	03/11/2022	03/14/2022	
Magnesium	2.27	0.823	"	"	"	"	"	
Sodium	ND	0.435	"	"	"	"	"	

## PAH by 8270D SIM

1-Methylnaphthalene	0.00213	0.000364	0.00067	mg/Kg	1	L605557	03/17/2022	03/18/2022	
2-Methylnaphthalene	0.00348	0.000645	0.00067	"	"	"	"	"	
Acenaphthene	ND	0.000304	0.00067	"	"	"	"	"	
Anthracene	ND	0.000334	0.00067	"	"	"	"	"	
Benzo(a)anthracene	ND	0.000493	0.00067	"	"	"	"	"	
Benzo(a)pyrene	ND	0.000468	0.00067	"	"	"	"	"	
Benzo(b)fluoranthene	ND	0.000585	0.00067	"	"	"	"	"	
Benzo(k)fluoranthene	ND	0.000437	0.00067	"	"	"	"	"	
Chrysene	ND	0.000624	0.00067	"	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.000614	0.00067	"	"	"	"	"	
Fluoranthene	ND	0.000394	0.00067	"	"	"	"	"	

Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

**TB-SS-02@2'**

**3/10/2022 12:51:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, Inc.**  
**Y203283-03 (Soil)**

## PAH by 8270D SIM

Fluorene	0.000532	0.000286	0.00067	mg/Kg	1	L605557	03/17/2022	03/18/2022	J
Indeno(1,2,3-cd)pyrene	ND	0.000627	0.00067	"	"	"	"	"	
Naphthalene	ND	0.000484	0.00067	"	"	"	"	"	
Pyrene	ND	0.000643	0.00067	"	"	"	"	"	

Surrogate: 2-Fluorobiphenyl	62.3 %	33-115	"	"	"
Surrogate: 4-Terphenyl-d14	71.7 %	33-122	"	"	"
Surrogate: Nitrobenzene-d5	52 %	29-110	"	"	"

## pH in Soil by 9045D

pH	8.25	pH Units	1	B2C1115	03/11/2022	03/12/2022
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## SAR by 20B Saturated Paste

SAR	0.144	SAR	1	B2C1113	03/11/2022	03/14/2022
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## Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.463	0.00500	mmhos/cm	1	B2C1114	03/11/2022	03/12/2022
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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 - Duncan 3N-64W-S11 TB

**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 B2C1111 - EPA 3550B										
Blank (B2C1111-BLK1)					Prepared: 03/11/2022 Analyzed: 03/15/2022					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	17		"	24.9		69.0	50-150			

Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

**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 B2C1111 - EPA 3550B**

**LCS (B2C1111-BS1)**

Prepared: 03/11/2022 Analyzed: 03/15/2022

Diesel (C10-C28)	549	25.0	mg/kg	500		110	70-130			
Residual Range Organics (C28-C40)	490	100	"	500		98.0	70-130			
Surrogate: o-Terphenyl	22		"	24.9		87.6	50-150			

Origins Laboratory, Inc.



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

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

## 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 B2C1111 - EPA 3550B

Matrix Spike (B2C1111-MS1)		Source: Y203245-01			Prepared: 03/11/2022 Analyzed: 03/15/2022					
Diesel (C10-C28)	455	25.0	mg/kg	500	ND	90.9	70-130			
Residual Range Organics (C28-C40)	556	100	"	500	34.0	104	70-130			
Surrogate: o-Terphenyl	16		"	24.9		66.0	50-150			

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8000 W 44th Ave  
Wheat Ridge CO 80033

Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

**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 B2C1111 - EPA 3550B**

Matrix Spike Dup (B2C1111-MSD1)		Source: Y203245-01			Prepared: 03/11/2022 Analyzed: 03/15/2022					
Diesel (C10-C28)	470	25.0	mg/kg	500	ND	94.1	70-130	3.43	35	
Residual Range Organics (C28-C40)	592	100	"	500	34.0	112	70-130	6.28	35	
Surrogate: o-Terphenyl	21		"	24.9		83.9	50-150			

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Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

## 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 B2C1202 - EPA 5030 (soil)</b>										
<b>Blank (B2C1202-BLK1)</b>					Prepared: 03/12/2022 Analyzed: 03/12/2022					
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		95.1	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		94.5	70-130			

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Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

**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 B2C1202 - EPA 5030 (soil)</b>										
<b>LCS (B2C1202-BS1)</b>					Prepared: 03/12/2022 Analyzed: 03/12/2022					
1,2,4-Trimethylbenzene	0.0930	0.00200	mg/kg	0.100		93.0	70-130			
1,3,5-Trimethylbenzene	0.0919	0.00200	"	0.100		91.9	70-130			
Benzene	0.0987	0.00200	"	0.100		98.7	70-130			
Ethylbenzene	0.0904	0.00200	"	0.100		90.4	70-130			
Naphthalene	0.0951	0.0100	"	0.100		95.1	70-130			
Toluene	0.0914	0.00200	"	0.100		91.4	70-130			
o-Xylene	0.0896	0.00200	"	0.100		89.6	70-130			
m,p-Xylene	0.190	0.00400	"	0.200		95.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		93.4	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		95.5	70-130			

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Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

**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 B2C1202 - EPA 5030 (soil)**

Matrix Spike (B2C1202-MS1)		Source: Y203262-01			Prepared: 03/12/2022 Analyzed: 03/12/2022					
1,2,4-Trimethylbenzene	0.0864	0.00200	mg/kg	0.100	ND	86.4	70-130			
1,3,5-Trimethylbenzene	0.0854	0.00200	"	0.100	ND	85.4	70-130			
Benzene	0.0934	0.00200	"	0.100	ND	93.4	70-130			
Ethylbenzene	0.0825	0.00200	"	0.100	ND	82.5	70-130			
Naphthalene	0.0882	0.0100	"	0.100	0.00118	87.0	70-130			
Toluene	0.0856	0.00200	"	0.100	ND	85.6	70-130			
o-Xylene	0.0828	0.00200	"	0.100	ND	82.8	70-130			
m,p-Xylene	0.175	0.00400	"	0.200	ND	87.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.8	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		92.9	70-130			

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Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

## 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
Batch B2C1202 - EPA 5030 (soil)										
Matrix Spike Dup (B2C1202-MSD1)		Source: Y203262-01			Prepared: 03/12/2022 Analyzed: 03/12/2022					
1,2,4-Trimethylbenzene	0.0877	0.00200	mg/kg	0.100	ND	87.7	70-130	1.52	20	
1,3,5-Trimethylbenzene	0.0865	0.00200	"	0.100	ND	86.5	70-130	1.26	20	
Benzene	0.0956	0.00200	"	0.100	ND	95.6	70-130	2.33	20	
Ethylbenzene	0.0860	0.00200	"	0.100	ND	86.0	70-130	4.20	20	
Naphthalene	0.0947	0.0100	"	0.100	0.00118	93.5	70-130	7.13	20	
Toluene	0.0879	0.00200	"	0.100	ND	87.9	70-130	2.70	20	
o-Xylene	0.0860	0.00200	"	0.100	ND	86.0	70-130	3.77	20	
m,p-Xylene	0.180	0.00400	"	0.200	ND	90.2	70-130	3.09	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.0	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		95.7	70-130			

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Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

## 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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## 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 B2C1114 - NO PREP

##### Blank (B2C1114-BLK1)

Prepared: 03/11/2022 Analyzed: 03/12/2022

Specific Conductance (EC) 0.00340 0.00500 mmhos/cm

##### Duplicate (B2C1114-DUP1)

Source: Y203272-03

Prepared: 03/11/2022 Analyzed: 03/12/2022

Specific Conductance (EC) 1.29 0.00500 mmhos/cm 1.27 1.28 25

#### Batch B2C1115 - NO PREP

##### Duplicate (B2C1115-DUP1)

Source: Y203272-03

Prepared: 03/11/2022 Analyzed: 03/12/2022

pH 7.95 pH Units 7.90 0.631 25

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Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L605557 - 3550B**

MSD (L 90748-MSD-L605557)		Source: 90748			Prepared: 03/17/2022 Analyzed: 03/18/2022					
Naphthalene	0.13	0.00242	mg/Kg	0.164	0.0724	35.1	30-130	8	30	
Pyrene	0.12	0.00322	"	0.164	0.005	70.1	30-130	17.1	30	
Benzo(a)pyrene	0.112	0.00234	"	0.164	<0.00234	68.2	30-130	24.2	30	
Benzo(a)anthracene	0.115	0.00247	"	0.164	<0.00247	70.1	30-130	18.1	30	
Anthracene	0.114	0.00167	"	0.164	<0.00167	69.5	30-130	21.1	30	
Acenaphthene	0.105	0.00152	"	0.164	0.0125	56.4	30-130	16	30	
2-Methylnaphthalene	0.272	0.00323	"	0.164	0.298	NR	30-130	2.8	30	*
Benzo(b)fluoranthene	0.0923	0.00293	"	0.164	<0.00293	56.2	30-130	19.7	30	
Benzo(k)fluoranthene	0.0803	0.00219	"	0.164	<0.00219	48.9	30-130	18.2	30	
Chrysene	0.109	0.00312	"	0.164	0.00831	61.3	30-130	13.7	30	
Dibenz(a,h)anthracene	0.143	0.00307	"	0.164	<0.00307	87.1	30-130	25.1	30	
Fluoranthene	0.122	0.00197	"	0.164	<0.00197	74.3	30-130	19.9	30	
Fluorene	0.13	0.00143	"	0.164	0.0359	57.3	30-130	13.9	30	
Indeno(1,2,3-cd)pyrene	0.133	0.00314	"	0.164	<0.00314	81	30-130	27.3	30	
1-Methylnaphthalene	0.215	0.00182	"	0.164	0.2	9.1	30-130	0	30	*
Surrogate: 2-Fluorobiphenyl	70.2		"	0.329	192	70.2	33-115			
Surrogate: Nitrobenzene-d5	56.8		"	0.329	159	56.8	29-110			
Surrogate: 4-Terphenyl-d14	81.7		"	0.329	231	81.7	33-122			

MS (L 90748-MS-L605557)		Source: 90748			Prepared: 03/17/2022 Analyzed: 03/18/2022					
Benzo(b)fluoranthene	0.0757	0.00293	mg/Kg	0.164	<0.00293	46.1	30-130			
Fluorene	0.113	0.00143	"	0.164	0.0359	47	30-130			
Pyrene	0.101	0.00322	"	0.164	0.005	58.5	30-130			
Naphthalene	0.12	0.00242	"	0.164	0.0724	29	30-130			*
Indeno(1,2,3-cd)pyrene	0.101	0.00314	"	0.164	<0.00314	61.5	30-130			
Fluoranthene	0.0999	0.00197	"	0.164	<0.00197	60.9	30-130			
Dibenz(a,h)anthracene	0.111	0.00307	"	0.164	<0.00307	67.6	30-130			

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Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L605557 - 3550B**

MS (L 90748-MS-L605557)		Source: 90748			Prepared: 03/17/2022 Analyzed: 03/18/2022					
Benzo(k)fluoranthene	0.0669	0.00219	mg/Kg	0.164	<0.00219	40.7	30-130			
Benzo(a)pyrene	0.0878	0.00234	"	0.164	<0.00234	53.5	30-130			
Benzo(a)anthracene	0.0959	0.00247	"	0.164	<0.00247	58.4	30-130			
Anthracene	0.0922	0.00167	"	0.164	<0.00167	56.2	30-130			
Acenaphthene	0.0894	0.00152	"	0.164	0.0125	46.8	30-130			
2-Methylnaphthalene	0.28	0.00323	"	0.164	0.298	NR	30-130			*
1-Methylnaphthalene	0.215	0.00182	"	0.164	0.2	9.1	30-130			*
Chrysene	0.095	0.00312	"	0.164	0.00831	52.8	30-130			
Surrogate: Nitrobenzene-d5	46.2		"	0.329	159	46.2	29-110			
Surrogate: 4-Terphenyl-d14	70.2		"	0.329	231	70.2	33-122			
Surrogate: 2-Fluorobiphenyl	59.2		"	0.329	192	59.2	33-115			

**LCS (LCS-L605557)**

Prepared: 03/17/2022 Analyzed: 03/18/2022

2-Methylnaphthalene	0.0856	0.000645	mg/Kg	0.167		51.2	30-130
Pyrene	0.103	0.000643	"	0.167		61.6	30-130
Naphthalene	0.0824	0.000484	"	0.167		49.3	30-130
Benzo(a)pyrene	0.093	0.000468	"	0.167		55.6	30-130
Benzo(b)fluoranthene	0.0887	0.000585	"	0.167		53.1	30-130
Benzo(k)fluoranthene	0.0782	0.000437	"	0.167		46.8	30-130
Chrysene	0.0903	0.000624	"	0.167		54	30-130
Dibenz(a,h)anthracene	0.119	0.000614	"	0.167		71.2	30-130
Fluoranthene	0.102	0.000394	"	0.167		61	30-130
Indeno(1,2,3-cd)pyrene	0.121	0.000627	"	0.167		72.4	30-130
1-Methylnaphthalene	0.0862	0.000364	"	0.167		51.6	30-130
Benzo(a)anthracene	0.0969	0.000493	"	0.167		58	30-130
Anthracene	0.0944	0.000334	"	0.167		56.5	30-130
Acenaphthene	0.0845	0.000304	"	0.167		50.5	30-130

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Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L605557 - 3550B**

**LCS (LCS-L605557)**

Prepared: 03/17/2022 Analyzed: 03/18/2022

Fluorene	0.0942	0.000286	mg/Kg	0.167		56.4	30-130			
Surrogate: 2-Fluorobiphenyl	66		"	0.333	66		33-115			
Surrogate: Nitrobenzene-d5	54		"	0.333	54		29-110			
Surrogate: 4-Terphenyl-d14	75.9		"	0.333	75.9		33-122			

**LRB (LRB-L605557)**

Prepared: 03/17/2022 Analyzed: 03/18/2022

1-Methylnaphthalene	ND	0.00067	mg/Kg				-			
2-Methylnaphthalene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Pyrene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	0.000645	0.00067	"				-			J
Fluoranthene	ND	0.00067	"				-			
Chrysene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Surrogate: 4-Terphenyl-d14	66.3		"	0.333	66.3		33-122			
Surrogate: Nitrobenzene-d5	51.6		"	0.333	51.6		29-110			
Surrogate: 2-Fluorobiphenyl	60.9		"	0.333	60.9		33-115			

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Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L605352 - 3550B**

MSD (L 88636-MSD-L605352)		Source: 88636			Prepared: 03/17/2022 Analyzed: 03/17/2022					
Dibenz(a,h)anthracene	0.13	0.00307	mg/Kg	0.167	<0.00307	77.8	30-130	36.4	30	
Acenaphthene	0.112	0.00152	"	0.167	<0.00152	67	30-130	0	30	
1-Methylnaphthalene	0.113	0.00182	"	0.167	<0.00182	67.6	30-130	2.6	30	
2-Methylnaphthalene	0.111	0.00323	"	0.167	<0.00323	66.4	30-130	3.5	30	
Benzo(a)anthracene	0.122	0.00247	"	0.167	<0.00247	73	30-130	2.4	30	
Benzo(a)pyrene	0.121	0.00234	"	0.167	<0.00234	72.4	30-130	5	30	
Benzo(b)fluoranthene	0.0897	0.00293	"	0.167	<0.00293	53.7	30-130	8.4	30	
Fluoranthene	0.13	0.00197	"	0.167	<0.00197	77.8	30-130	1.5	30	
Chrysene	0.112	0.00312	"	0.167	<0.00312	67	30-130	0.8	30	
Benzo(k)fluoranthene	0.0747	0.00219	"	0.167	<0.00219	44.7	30-130	16.5	30	
Anthracene	0.125	0.00167	"	0.167	<0.00167	74.8	30-130	1.5	30	
Naphthalene	0.107	0.00242	"	0.167	<0.00242	64	30-130	3.6	30	
Pyrene	0.13	0.00322	"	0.167	<0.00322	77.8	30-130	1.5	30	
Fluorene	0.123	0.00143	"	0.167	<0.00143	73.6	30-130	0	30	
Indeno(1,2,3-cd)pyrene	0.104	0.00314	"	0.167	<0.00314	62.2	30-130	43	30	
Surrogate: 2-Fluorobiphenyl	72.3		"	0.333	234	72.3	33-115			
Surrogate: 4-Terphenyl-d14	81.6		"	0.333	281	81.6	33-122			
Surrogate: Nitrobenzene-d5	59.1		"	0.333	196	59.1	29-110			

MS (L 88636-MS-L605352)		Source: 88636			Prepared: 03/17/2022 Analyzed: 03/17/2022					
Naphthalene	0.111	0.00242	mg/Kg	0.166	<0.00242	66.8	30-130			
Acenaphthene	0.112	0.00152	"	0.166	<0.00152	67.4	30-130			
Indeno(1,2,3-cd)pyrene	0.161	0.00314	"	0.166	<0.00314	96.9	30-130			
Fluorene	0.123	0.00143	"	0.166	<0.00143	74	30-130			
Pyrene	0.128	0.00322	"	0.166	<0.00322	77.1	30-130			
1-Methylnaphthalene	0.116	0.00182	"	0.166	<0.00182	69.8	30-130			
Anthracene	0.127	0.00167	"	0.166	<0.00167	76.5	30-130			

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Martin C Eckert III  
Project Number: [none]  
Project: Noble - Duncan 3N-64W-S11 TB

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L605352 - 3550B**

MS (L 88636-MS-L605352)		Source: 88636			Prepared: 03/17/2022 Analyzed: 03/17/2022					
Benzo(a)anthracene	0.119	0.00247	mg/Kg	0.166	<0.00247	71.6	30-130			
Benzo(a)pyrene	0.115	0.00234	"	0.166	<0.00234	69.2	30-130			
Benzo(b)fluoranthene	0.0976	0.00293	"	0.166	<0.00293	58.7	30-130			
Benzo(k)fluoranthene	0.0882	0.00219	"	0.166	<0.00219	53.1	30-130			
Chrysene	0.111	0.00312	"	0.166	<0.00312	66.8	30-130			
Dibenz(a,h)anthracene	0.188	0.00307	"	0.166	<0.00307	113	30-130			
Fluoranthene	0.128	0.00197	"	0.166	<0.00197	77.1	30-130			
2-Methylnaphthalene	0.115	0.00323	"	0.166	<0.00323	69.2	30-130			
Surrogate: Nitrobenzene-d5	67.4		"	0.332	196	67.4	29-110			
Surrogate: 2-Fluorobiphenyl	82.5		"	0.332	234	82.5	33-115			
Surrogate: 4-Terphenyl-d14	92.7		"	0.332	281	92.7	33-122			

**LCS (LCS-L605352)**

Prepared: 03/17/2022 Analyzed: 03/17/2022

Fluoranthene	0.148	0.000394	mg/Kg	0.167		88.6	30-130
1-Methylnaphthalene	0.123	0.000364	"	0.167		73.6	30-130
Pyrene	0.148	0.000643	"	0.167		88.6	30-130
Naphthalene	0.12	0.000484	"	0.167		71.8	30-130
Fluorene	0.134	0.000286	"	0.167		80.2	30-130
Dibenz(a,h)anthracene	0.19	0.000614	"	0.167		114	30-130
Chrysene	0.136	0.000624	"	0.167		81.4	30-130
Benzo(k)fluoranthene	0.108	0.000437	"	0.167		64.6	30-130
2-Methylnaphthalene	0.123	0.000645	"	0.167		73.6	30-130
Indeno(1,2,3-cd)pyrene	0.172	0.000627	"	0.167		103	30-130
Benzo(b)fluoranthene	0.142	0.000585	"	0.167		85	30-130
Acenaphthene	0.117	0.000304	"	0.167		70	30-130
Anthracene	0.145	0.000334	"	0.167		86.8	30-130
Benzo(a)anthracene	0.14	0.000493	"	0.167		83.8	30-130

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 - Duncan 3N-64W-S11 TB

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch L605352 - 3550B**

**LCS (LCS-L605352)**

Prepared: 03/17/2022 Analyzed: 03/17/2022

Benzo(a)pyrene	0.141	0.000468	mg/Kg	0.167		84.4	30-130			
Surrogate: Nitrobenzene-d5	57.3		"	0.333		57.3	29-110			
Surrogate: 2-Fluorobiphenyl	69.3		"	0.333		69.3	33-115			
Surrogate: 4-Terphenyl-d14	84.9		"	0.333		84.9	33-122			

**LRB (LRB-L605352)**

Prepared: 03/17/2022 Analyzed: 03/17/2022

Chrysene	ND	0.00067	mg/Kg				-			
1-Methylnaphthalene	ND	0.00067	"				-			
Naphthalene	ND	0.00067	"				-			
Indeno(1,2,3-cd)pyrene	ND	0.00067	"				-			
Fluorene	ND	0.00067	"				-			
Fluoranthene	ND	0.00067	"				-			
Dibenz(a,h)anthracene	ND	0.00067	"				-			
Pyrene	ND	0.00067	"				-			
Benzo(k)fluoranthene	ND	0.00067	"				-			
Benzo(b)fluoranthene	ND	0.00067	"				-			
Benzo(a)pyrene	ND	0.00067	"				-			
Benzo(a)anthracene	ND	0.00067	"				-			
Anthracene	ND	0.00067	"				-			
Acenaphthene	ND	0.00067	"				-			
2-Methylnaphthalene	ND	0.00067	"				-			
Surrogate: Nitrobenzene-d5	62.1		"	0.333		62.1	29-110			
Surrogate: 4-Terphenyl-d14	82.8		"	0.333		82.8	33-122			
Surrogate: 2-Fluorobiphenyl	76.5		"	0.333		76.5	33-115			

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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 - Duncan 3N-64W-S11 TB

### Notes and Definitions

U Sample is Non-Detect.

J Estimated Value. Analyte below reported quantitation limit.

\* 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.

Origins Laboratory, Inc.



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