

FREMONT ENVIRONMENTAL INC.

September 11, 2024

Mr. Daniel Peterson
Noble Energy Inc.
2115 117th Avenue
Greeley, CO 80634

Subject: **Facility Closure Data Submittal**
Ocoma T4N-R64W-S17 L01
SENW Sec. 17, T4N, R64W
Weld County, Colorado
Fremont Project No. C024-211
Facility # 326690, Remediation # 34676

Dear Mr. Peterson:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted Facility Closure activities for the Noble Energy Inc. (Noble) Ocoma T4N-R64W-S17 L01 tank battery. Organic soil impacts were not encountered during abandonment activities. Details of the Ocoma T4N-R64W-S17 L01 facility closure activities are documented in the attached Closure Report. Groundwater was not encountered during the facility abandonment activities.

Please contact me at (603) 477-6907 if you require any additional information. Fremont appreciates the opportunity to provide this service.

Sincerely,

FREMONT ENVIRONMENTAL INC.



Ethan D. Black, PG
Geologist

Attachments:

- Facility Closure Checklist
- Tables
- Figures
- Photos

<i>Third Party Removal Date</i>									
<i>Sample taken? Location/ Sample</i>									
<i>PID Readings</i>									
<i>Photo Number(s)</i>									

Other Facility Equipment

<i>Equipment type</i>					
<i>Equipment Condition Age</i>					
<i>Soil impacts</i>					
<i>PID Readings</i>					
<i>Sample taken? Location/ Sample</i>					
<i>Photo Number(s)</i>					

Other observations regarding other facility or third party equipment:

Summary

<i>Was impacted soil identified?</i>	
No	Yes - less than 10 cubic yards
Yes - more than 10 cubic yards	
<i>Total number of samples field screened:</i>	<i>Total number of samples collected:</i>
<i>Highest PID Reading:</i>	<i>Total number of samples submitted to lab for analysis:</i>
<i>If more than 10 cubic yards of impacted soil were observed:</i>	
<i>Vertical extent:</i>	<i>Estimated spill volume:</i>
<i>Lateral extent:</i>	<i>Volume of soil removed:</i>
<i>Is additional investigation required?</i>	
<i>Was groundwater encountered during the investigation?</i>	
No	Yes - not impacted or in contact with impacted soils
Yes - groundwater impacted and/or in contact with impacted soils	
<i>Measured depth to groundwater:</i>	<i>Was remedial groundwater removal conducted? Yes No</i>
<i>Date Groundwater was encountered:</i>	<i>Commencement date of removal:</i>
<i>Sheen on groundwater? Yes No</i>	<i>Volume of groundwater removed prior to sampling:</i>
<i>Free product observed? Yes No</i>	<i>Volume of groundwater removed post sampling:</i>
<i>Total number of samples collected:</i>	<i>Total Volume of groundwater removed:</i>
<i>Total number of samples submitted to lab for analysis:</i>	

Buried or Partially Buried Vessel Closure Checklist

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

Additional attachments (optional):		Pit Closure		Wellhead Closure		Flowline Closure		Tank Battery Closure	
Site Name & COGCC Facility Number:		Date:						Remediation Project #:	
Associated Wells:		Age of Site:						Number of Photos Attached:	
Location: (GPS coordinates of vault or southeastern tank berm for multiple)							Estimated Facility Size (acres):		
General Condition of Site: (General observations regarding housekeeping, corrosion, waste management, etc.)									
USCS Soil Type:				Estimated Depth to Groundwater:					
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)									
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)									
Buried or Partially Buried Vessels									
Tank Contents									
Size (barrels)									
Age									
Construction Material									
Visual Integrity of Tank									
Condition of tank Foundation									
PID Readings									
Condition of Jumps Lines									
PID Readings									
Sample taken? Location/Sample ID#									
Photo Number(s)									
Other observations regarding partially buried vessels:									
Summary									
Was impacted soil identified? <div style="display: flex; justify-content: space-between;"> No Yes - less than 10 cubic yards Yes - more than 10 cubic yards </div>									
Total number of samples field screened:				Total number of samples collected:					
Highest PID Reading:				Total number of samples submitted to lab for analysis:					
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? <div style="display: flex; justify-content: space-between;"> No Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils </div>									
Measured depth to groundwater:				Was remedial groundwater removal conducted? Yes No					
Date Groundwater was encountered:				Commencement date of removal:					
Sheen on groundwater? Yes No				Volume of groundwater removed prior to sampling:					
Free product observed? Yes No				Volume of groundwater removed post sampling:					
Total number of samples collected:				Total Volume of groundwater removed:					
Total number of samples submitted to lab for analysis:									

TABLE 1
FIELD DATA SUMMARY TABLE
NOBLE 100322
OCOMA T4N-R64W-S17 L01, WELD COUNTY, COLORADO
REM # 34676

Sample ID	Sample Date	Depth	GPS Data		PDOP Value	VOC Concentration (ppm)
			Latitude	Longitude		
AST01 CEN. Surface	9/10/2024	Surface	40.306	-104.57	0.80	0.0
AST01 Loadout	9/10/2024	Surface	40.3056524	-104.57474	0.80	0.0
ECD Surface	9/10/2024	Surface	40.3059039	-104.57476	1.00	0.0
PWV01 E Wall 3 Ft	9/10/2024	3	40.3056924	-104.57475	0.90	0.0
PWV01 Floor 4 Ft	9/10/2024	4	40.3056913	-104.57478	0.80	0.6
PWV01 N Wall 3 Ft	9/10/2024	3	40.3057044	-104.57477	0.80	0.0
PWV01 S Wall 3 Ft	9/10/2024	3	40.3056731	-104.57478	0.90	0.0
PWV01 W Wall 3 Ft	9/10/2024	3	40.3056964	-104.57480	0.80	0.0
SEP01 DLR 3 Ft	9/10/2024	3	40.305830	-104.574766	1.10	0.0
BKG 1	9/10/2024	Multiple	40.306097	-104.574700	1.00	0.0
BKG 2	9/10/2024	Multiple	40.306204	-104.574477	0.90	0.0
BKG 3	9/10/2024	Multiple	40.306310	-104.574137	0.90	0.0
BKG 4	9/10/2024	Multiple	40.306139	-104.573924	0.90	0.0
BKG 5	9/10/2024	Multiple	40.306247	-104.573393	0.90	0.0

1. Global Positioning System (GPS) data is provided in decimal degrees using North American Datum (NAD) 83 UTMZone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

in. = Inches

ft. = Feet

bgs = Below ground surface

= Source material characterization sample, excavated and transported off site for disposal.

= Material excavated and transported off site for disposal.

TABLE 2
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE 100322
OCOMA T4N-R64W-S17 L01, WELD COUNTY, COLORADO
REM # 34676

Sample ID	Sample Date	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	1,2,4-Trimethyl-Benzene (mg/kg)	1,3,5-Trimethyl-Benzene (mg/kg)	Naphthalene (mg/kg)	TPH (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500	500**		
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	500**		
AST01 CEN SURF.	09/10/2024	Surface	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
PWV FLOOR 4FT	09/10/2024	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
SEP01 DLR 3FT	09/10/2024	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
SEP01 FLR 3FT	09/10/2024	3	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50

1. Bold values exceed the ECMC Table 915-1 limit(s)

2. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)

3. * Indicates laboratory minimum detection limit in excess of SSL

4. ** Summation of GRO+DRO+ORO must be less than 500 mg/kg

NA - Not analyzed

= Source material characterization sample, excavated and transported off site for disposal.

= Material excavated and transported off site for disposal.

TABLE 3
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE 100322
OCOMA T4N-R64W-S17 L01, WELD COUNTY, COLORADO
REM # 34676

Sample ID	Sample Date	Depth (ft)	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)	Pyrene (mg/kg)	1-Methyl - Naphthalene (mg/kg)	2-Methyl- Naphthalene (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			360	1800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
AST01 CEN SURF.	09/10/2024	Surface	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PWV FLOOR 4FT	09/10/2024	4	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP01 DLR 3FT	09/10/2024	3	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP01 FLR 3FT	09/10/2024	3	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

1. Bold values exceed the ECMC Table 915-1 limit(s)
2. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)
3. * Indicates laboratory minimum detection limit in excess of SSL

NA - Not analyzed

= Source material characterization sample, excavated and transported off site for disposal.
 = Material excavated and transported off site for disposal.

TABLE 4
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
NOBLE 100322
OCOMA T4N-R64W-S17 L01, WELD COUNTY, COLORADO
REM # 34676

Sample ID	Sample Date	Depth (ft)	pH (Standard Units)	EC (mmhos/cm)	SAR (Standard Units)	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
AST01 CEN SURF.	09/10/2024	Surface	8.97	0.096	0.0462	<2.00
PWV FLOOR 4FT	09/10/2024	4	8.83	0.094	0.0345	<2.00
SEP01 DLR 3FT	09/10/2024	3	8.82	0.11	0.0585	<2.00
SEP01 FLR 3FT	09/10/2024	3	8.63	0.129	0.0286	<2.00
BKG1 2FT	09/10/2024	2	8.47	0.12	0.203	<2.00
BKG2 2FT	09/10/2024	2	7.87	2.04	2.59	<2.00
BKG3 2FT	09/10/2024	2	8.58	2.54	7.21	<2.00
BKG4 2FT	09/10/2024	2	8.58	0.137	0.341	<2.00
BKG5 2FT	09/10/2024	2	6.13	0.475	0.161	<2.00
Maximum Root Background Concentration (0 - 3 ft)			8.58	2.54	7.21	NA
Average Root Background Concentration (0 - 3 ft)			7.926	1.062	2.101	NA
Maximum Background Concentration			8.58	2.54	7.21	NA
Average Background Concentration			7.926	1.062	2.101	NA

1. Bold faced values exceed the ECMC Table 915-1 limit(s)

2. Blue highlighted soil analytical values indicate a regulatory exceedance

NA - Not analyzed

 = Source material characterization sample, excavated and transported off site for disposal.

 = Material excavated and transported off site for disposal.

TABLE 5
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE 100322
OCOMA T4N-R64W-S17 L01, WELD COUNTY, COLORADO
REM # 34676

Sample ID	Sample Date	Depth (ft)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			0.68	15000	71	0.3	3100	400	1500	390	390	23000
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
AST01 CEN SURF.	09/10/2024	Surface	1.95	47.4	<0.200	<0.30	4.58	4.33	4.72	<0.260	<0.0200	20.3
PWV FLOOR 4FT	09/10/2024	4	1.88	42.1	<0.200	<0.30	3.59	3.32	4.24	<0.260	<0.0200	15
SEP01 DLR 3FT	09/10/2024	3	1.59	41.6	<0.200	<0.30	3.62	3.45	3.98	<0.260	<0.0200	14.2
SEP01 FLR 3FT	09/10/2024	3	2.08	46.9	<0.200	<0.30	4.59	3.05	3.72	<0.260	<0.0200	14.4
BKG1 2FT	09/10/2024	2	0.732	51.6	<0.200	<0.30	1.64	4.74	1.69	<0.260	0.0337	7.13
BKG2 2FT	09/10/2024	2	0.754	46.2	<0.200	<0.30	1.12	4.1	1.54	<0.260	0.0321	5.51
BKG3 2FT	09/10/2024	2	0.56	30.3	<0.200	<0.30	0.958	3.45	1.19	<0.260	<0.0200	4.64
BKG4 2FT	09/10/2024	2	0.684	82.3	<0.200	<0.30	1.3	6.62	1.77	<0.260	0.0377	8.02
BKG5 2FT	09/10/2024	2	0.61	39.8	<0.200	<0.30	1.43	5.83	1.35	<0.260	<0.0200	6.92
Maximum Root Zone Background Concentration (0 - 3 ft)			0.754	82.3	NA	NA	1.64	6.62	1.77	NA	0.0377	8.02
125% Average Root Zone Background Concentration (0 - 3 ft)			0.835	62.55	NA	NA	1.612	6.185	1.885	NA	0.043125	8.055
Maximum Background Concentration			0.754	82.3	NA	NA	1.64	6.62	1.77	NA	0.0377	8.02
125% Average Background Concentration			0.835	62.55	NA	NA	1.612	6.185	1.885	NA	0.043125	8.055

1. Bold values exceed the ECMC Table 915-1 limit(s)

2. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL)

* Indicates laboratory minimum detection limit in excess of SSL

NA - Not analyzed

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= Material excavated and transported off site for disposal.

Ocoma T4N-R64W-S17 L01

SESW Sec. 17, T4N, R64W
40.305859, -104.574797
Remediation Project #: 34676, Facility ID: 326690
Fremont No. C024-211

BKG1

Legend

-  Multi-phase Flowlines
-  Soil Sample Locations



Ocoma T4N-R64W-S17 L01

Background Sample Location Map

SESW Sec. 17, T4N, R64W
40.305859, -104.574797
Remediation Project #: 34676, Facility ID: 326690
Fremont No. C024-211

Legend

- Multiphase Flowlines
- Soil Sample Locations



ECD Surface
SEP01 DLR 3 Ft
SEP01 FLR 3 Ft
PWV01 W Wall 3 Ft
PWV01 N Wall 3 Ft
AST01 CEN. Surface
AST01 Loadout
CFL02 3 Ft

BKG 1
BKG 2
BKG 3
BKG 4
BKG 5

CFL01 WH

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Google Earth

Image © 2024 Airbus



500 ft

Photo Log



Description:

1 - Ocoma T4N-R64W-S17 L01 AST01 sample location, looking NW, no odor or staining

Photo Log



Description:

2 - Ocoma T4N-R64W-S17 L01 PWV01 excavation, looking north, no odor or staining

Photo Log



Description:

3 - Ocoma T4N-R64W-S17 L01 SEP01 location prior to DL and FL excavation, no odor or staining

Photo Log



Description:

4 - Ocoma T4N-R64W-S17 L01 SEP01 location following DL (foreground - green) and FL (background - black) excavation, no odor or staining

Photo Log



Description:

5 - Ocoma T4N-R64W-S17 L01 ECD01 location, looking S, no odor or staining