

FREMONT ENVIRONMENTAL INC.

January 26, 2024

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

Subject: **Flowline Closure Data Submittal**
Trebor B11-15
API # 05-123-13522
SWSE Sec. 11, T5N, R64W
Weld County, Colorado
Fremont Project No. C023-313
Facility ID #245727, Remediation #30734

Dear Mr. Peterson:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted Flowline Closure activities for the Noble Energy Inc. (Noble) Trebor B11-15. Impacted soil was not encountered during abandonment activities. Details of the Trebor B11-15 flowline closure activities are documented in the attached Closure Report. Groundwater was not encountered during flowline abandonment activities.

Please contact me at (303) 956-8714 if you require any additional information. Fremont appreciates the opportunity to provide this service.

Sincerely,

FREMONT ENVIRONMENTAL INC.



Paul V. Henehan, P.E.
Senior Consultant

Attachments:

- Facility Closure Checklist
- Tables
- Figures
- Photos
- Laboratory Reports

1759 REDWING LANE, BROOMFIELD, CO 80020
(303) 956-8714 (DIRECT)

Flowline Closure Checklist

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

Additional Attachments:		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure
Site Name & COGCC Facility Number: TREBOR T5N-R64W-S11 L07 Facility: 326699		Date: 11/30/2023			Remediation Project #: 30734			
Associated Wells: Trebor B11-15 Facility ID: 245727 API: 05-123-13522		Age of Site: 1987			Number of Photos Attached: 9 Photos			

Starting point: (GPS coordinates and descriptions) 40.4087077, -104.5151784

End point: (GPS coordinates and descriptions) 40.4082546, -104.5086054

USCS Soil Type: SC & SW Estimated Depth to Groundwater: N/A

Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)
None observed

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

Flowlines

Flowline type	2" Steel							
Depth	Roughly 3-4ft							
Age	1987							
Length	1,915ft							
Construction Material	Black Tape							
Were flowlines pulled?	Partially							
Visual Integrity of lines	No Damage							
Visual impacts if trenched	N/A							
PID Readings if trenched	N/A							
Sample taken? Location/Sample ID#	FL01 @ 4.0' FL07 @ 5.0'							
Photo Number(s)	Photo 1A-1G & 2A-2B							

Other observations regarding on location flowlines: 1,320 feet of flowline was removed from wellhead tie-in (FL01@4.0') to sample location FL06@5.0'. 595 feet of flowline was cut, capped and abandoned-in-place from sample location FL06@5.0' to separator tie-in (FL07@5.0'). An exceedance in pH was discovered at the separator tie-in (FL07@5.0') sample location, an exceedance in barium was discovered at the wellhead tie-in (FL01@4.0') sample location and both the wellhead and separator tie-in sample locations were found with an exceedance in arsenic. These exceedances in pH, arsenic and barium were all discovered in local background samples collected in undisturbed areas. Thus, these exceedances should be contributed to native soil conditions. Refer to the inorganic soil chemistry table (Table 3) and metals in soil chemistry table (Table 4) for reference.

Summary

Was impacted soil identified?		No	Yes - less than 10 cubic yards	Yes - more than 10 cubic yards
Total number of samples field screened: 5 samples		Total number of samples collected: 9 samples		
Highest PID Reading: High @ 0.4ppm (FL07@5.0')		Total number of samples submitted to lab for analysis: 4 Samples		
If more than 10 cubic yards of impacted soil were observed:				
Vertical extent: N/A		Estimated spill volume: N/A		
Lateral extent: N/A		Volume of soil removed: N/A		
Is additional investigation required? N/A				
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: N/A		Was remedial groundwater removal conducted? Yes No		
Date Groundwater was encountered: N/A		Commencement date of removal: N/A		
Sheen on groundwater? Yes No		Volume of groundwater removed prior to sampling: N/A		
Free product observed? Yes No		Volume of groundwater removed post sampling: N/A		
Total number of samples collected: N/A		Total Volume of groundwater removed: N/A		
Total number of samples submitted to lab for analysis: N/A				

TABLE 1
FIELD DATA SUMMARY TABLE
NOBLE 100322
TREBOR B11-15, WELD COUNTY, COLORADO
REM # 30734

Sample ID	Sample Date	Depth (ft)	GPS Data Latitude/Longitude		PDOP Value	VOC Concentration (ppm)
FL01@4.0'	11/30/2023	4.0 Ft	40.4087077	-104.5151784	-	0.0
FL04@4.0'	11/30/2023	4.0 Ft	40.4081788	-104.512921	-	0.0
FL05@4.0'	11/30/2023	4.0 Ft	40.4081733	-104.5116433	-	0.0
BKG01@4.0'	11/30/2023	4.0 Ft	40.4088431	-104.5152309	-	0.0
FL03@4.5'	11/30/2023	4.5 Ft	40.4081748	-104.5139525	-	0.0
FL02@5.0'	11/30/2023	5.0 Ft	40.4084039	-104.51475	-	0.0
FL06@5.0'	11/30/2023	5.0 Ft	40.4081649	-104.5107069	-	0.0
FL07@5.0'	11/30/2023	5.0 Ft	40.4082546	-104.5086054	-	0.4
BKG02@5.0'	11/30/2023	5.0 Ft	40.4084034	-104.5086824	-	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

TABLE 2
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE 100322
TREBOR B11-15, WELD COUNTY, COLORADO
REM # 30734

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**		
FL01@4.0'	11/30/2023	4.0 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL07@5.0'	11/30/2023	5.0 Ft	<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
- (<) = Analytical result is less than the indicated laboratory reporting limit.
TPH-GRO = Total petroleum hydrocarbons - gasoline range organics
TPH-DRO = Total petroleum hydrocarbons - diesel range organics
TPH-ORO = Total petroleum hydrocarbons - oil range organics
mg/kg = Milligrams per kilogram
ft. = Feet
bgs = Below ground surface
NA - Not analyzed

TABLE 3
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE 100322
TREBOR B11-15, WELD COUNTY, COLORADO
REM # 30734

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
FL01@4.0'	11/30/2023	4.0 Ft	<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
FL07@5.0'	11/30/2023	5.0 Ft	<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
 4. ** Summation of GRO+DRO+ORO must be less than 500 mg/kg
- (<) = Analytical result is less than the indicated laboratory reporting limit.
TPH-GRO = Total petroleum hydrocarbons - gasoline range organics
TPH-DRO = Total petroleum hydrocarbons - diesel range organics
TPH-ORO = Total petroleum hydrocarbons - oil range organics
mg/kg = Milligrams per kilogram
ft. = Feet
bgs = Below ground surface
NA - Not analyzed

TABLE 4
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
NOBLE 100322
TREBOR B11-15, WELD COUNTY, COLORADO
REM # 30734

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
FL01@4.0'	11/30/2023	4.0 Ft	8.27	0.294	0.694	<2.00
FL07@5.0'	11/30/2023	5.0 Ft	8.47	0.440	0.859	<2.00
BKG01@4.0'	11/30/2023	4.0 Ft	8.10	1.32	3.05	<2.00
BKG02@5.0'	11/30/2023	5.0 Ft	8.87	0.521	2.44	<2.00
Maximum Background Concentration		4.0 Ft	8.10	1.32	3.05	<2.00
Maximum Background Concentration		5.0 Ft	8.87	0.521	2.44	<2.00

1. **Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within background concentrations.
2. **Bold** faced values exceed the ECMC Table 915-1 limit(s) and native background concentrations.
3. Brown highlighted soil analytical values indicate a regulatory exceedance.

NA - Not analyzed/Not applicable

TABLE 5
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE 100322
TREBOR B11-15, WELD COUNTY, COLORADO
REM # 30734

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
FL01@4.0'	11/30/2023	4.0 Ft	3.04	118	0.332	<0.30	7.21	11.0	6.38	<0.260	0.0570	30.2
FL07@5.0'	11/30/2023	5.0 Ft	1.98	69.1	<0.200	<0.30	3.05	5.61	3.31	<0.260	<0.0200	13.5
BKG01@4.0'	11/30/2023	4.0 Ft	3.19	126	0.349	<0.30	7.10	11.2	5.22	0.294	0.0642	31.4
BKG02@5.0'	11/30/2023	5.0 Ft	1.79	28.5	<0.200	<0.30	1.78	3.05	1.72	<0.260	<0.0200	7.93
1.25x Maximum Background Concentration		4.0 Ft	3.99	158	0.436	<0.30	8.88	14.0	6.53	0.368	0.0803	39.3
1.25x Maximum Background Concentration		5.0 Ft	2.24	35.6	<0.200	<0.30	2.23	3.81	2.15	<0.260	<0.0200	9.91

1. **Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within 1.25x background concentrations.
2. **Bold** faced values exceed the ECMC Table 915-1 limit(s) and native background concentrations.
3. Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL).
4. Non-detect background results accounted for in the highest background concentration by using the reporting limit.

ECMC = Energy & Carbon Management Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

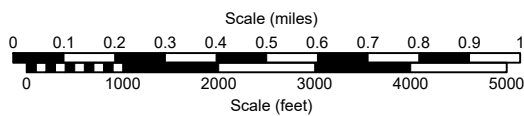
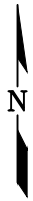
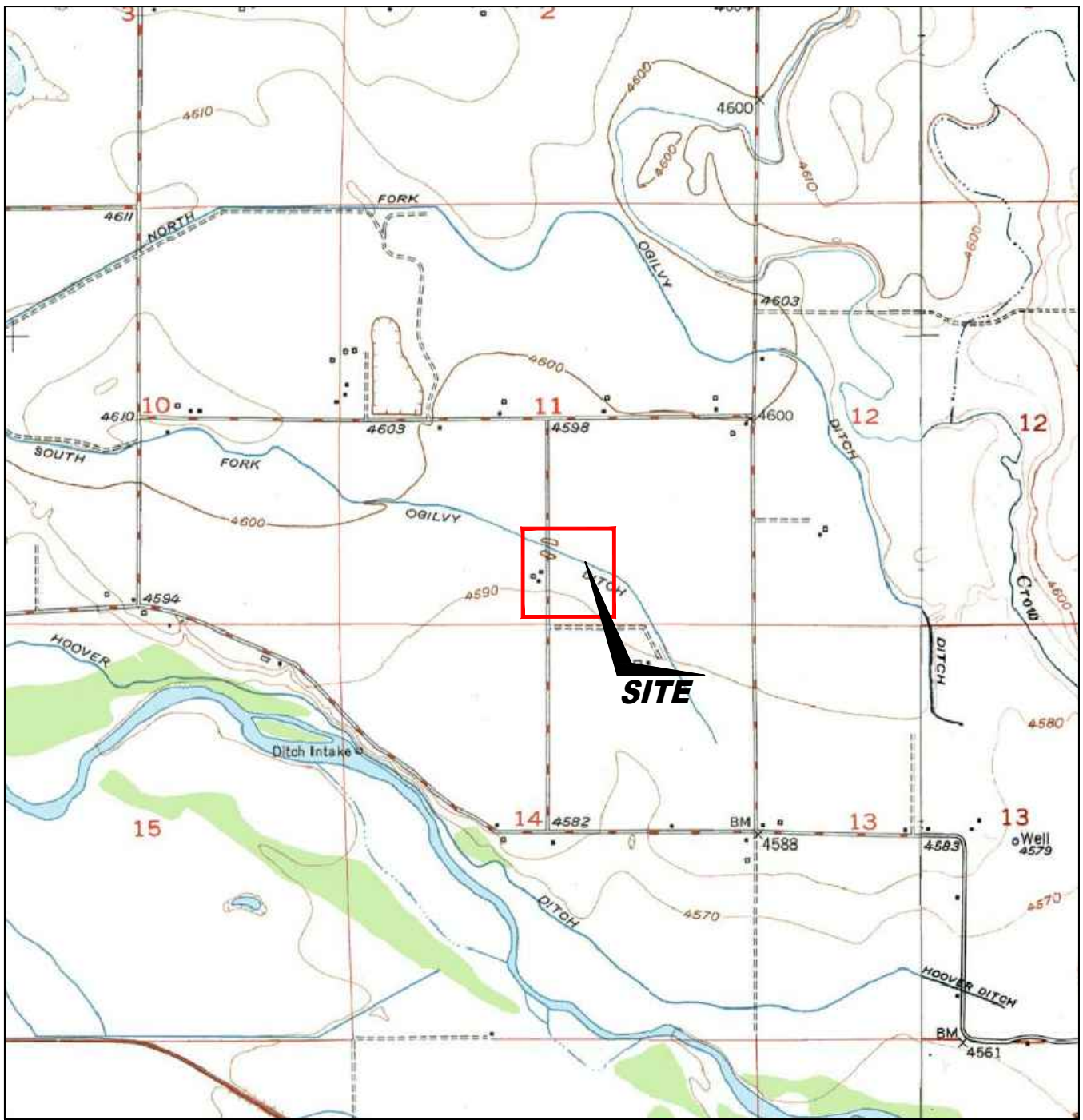
mg/kg = Milligrams per kilogram

ft. = Feet

bgs = Below ground surface

* Indicates laboratory minimum detection limit in excess of SSL

NA - Not analyzed/Not applicable



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP
NOBLE ENERGY INC ~ TREBOR B11-15

SWSE Sec. 11, T5N, R64W, 6th PM
 Weld County, Colorado
 40.408712°, -104.515210°

Project # CO23-313	API # 05-123-13522	Facility # 245727
Date 7/9/24	Remediation # 30734	Filename 23313T





LEGEND

- ▲ PID READING LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- REMOVED FLOW LINE
- ABANDONED IN PLACE FLOW LINE
- FENCE LINE
- CONTAINMENT BERM
- CONTAINMENT WALL

**Figure 2
SITE MAP
NOBLE ENERGY INC ~ TREBOR B11-15**

SWSE Sec. 11, T5N, R64W, 6th PM
Weld County, Colorado
40.408712°, -104.515210°

Project No. CO23-313	API # 05-123-13522	Facility # 245727
Date 8/5/24	Remediation # 30734	Filename 23313Q





BKG01@4.0'		BKG01@4.0'	
11/30/2023		11/30/2023	
4.0 FT		4.0 FT	
As	3.19	pH	8.10
BA	128	EC	1.32
CD	0.348	SAR	3.05
CR(V)	<-0.30	B	<-2.00
CU	7.10		
PB	11.2		
NI	5.22		
SE	0.294		
AG	0.0642		
Z	31.4		

FL01@4.0'		FL01@4.0'		FL01@4.0'		FL01@4.0'	
11/30/2023		11/30/2023		11/30/2023		11/30/2023	
4.0 FT		4.0 FT		4.0 FT		4.0 FT	
ACE	<-0.0050	B	<-0.0020	As	3.04	pH	8.27
Ant	<-0.0050	T	<-0.0050	BA	118	EC	0.294
BaA	<-0.0050	E	<-0.0050	CD	0.332	SAR	0.904
BaP	<-0.0050	X	<-0.010	CR(V)	<-0.30	B	<-2.00
BbF	<-0.0050	124TMB	<-0.0050	CU	7.21		
BkF	<-0.0050	135TMB	<-0.0050	PB	11.0		
Chr	<-0.0050	N	<-0.0038	SE	<-0.260		
DBahAnt	<-0.0050	G	<-0.50	AG	0.0579		
FLU	<-0.0050	D	<-50	Z	30.2		
FL	<-0.0050	O	<-50				
1123cdPPY	<-0.0050						
PPY	<-0.0050						
1MN	<-0.0050						
2MN	<-0.0050						

BKG02@5.0'		BKG02@5.0'	
11/30/2023		11/30/2023	
5.0 FT		5.0 FT	
As	1.78	pH	8.87
BA	28.9	EC	0.021
CD	<-0.200	SAR	2.44
CR(V)	<-0.30	B	<-2.00
CU	1.78		
PB	3.05		
NI	1.72		
SE	<-0.260		
AG	<-0.0200		
Z	7.93		

FL07@5.0'		FL07@5.0'		FL07@5.0'		FL07@5.0'	
11/30/2023		11/30/2023		11/30/2023		11/30/2023	
5.0 FT		5.0 FT		5.0 FT		5.0 FT	
ACE	<-0.0050	B	<-0.0020	As	1.98	pH	8.47
Ant	<-0.0050	T	<-0.0050	BA	69.1	EC	0.440
BaA	<-0.0050	E	<-0.0050	CD	<-0.200	SAR	0.859
BaP	<-0.0050	X	<-0.010	CR(V)	<-0.30	B	<-2.00
BbF	<-0.0050	124TMB	<-0.0050	CU	3.05		
BkF	<-0.0050	135TMB	<-0.0050	PB	5.61		
Chr	<-0.0050	N	<-0.0038	NI	3.31		
DBahAnt	<-0.0050	G	<-0.0038	SE	<-0.260		
FLU	<-0.0050	D	<-50	AG	<-0.0200		
FL	<-0.0050	O	<-50	Z	13.5		
1123cdPPY	<-0.0050						
PPY	<-0.0050						
1MN	<-0.0050						
2MN	<-0.0050						

LEGEND

- SOIL SAMPLE LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- FORMER FACILITY
- REMOVED FLOW LINE
- ABANDONED IN PLACE FLOW LINE
- FENCE LINE
- CONTAINMENT BERM
- CONTAINMENT WALL
- NOT ANALYZED

SAMPLE ID	SAMPLE ID	SAMPLE ID	SAMPLE ID
DATE	DATE	DATE	DATE
DEPTH	DEPTH	DEPTH	DEPTH
ACE	<-0.0050	ANTRACENE (mg/kg)	
As	<-0.0050	ANTHRACENE (mg/kg)	
BaA	<-0.0050	BENZO (A) ANTHRACENE (mg/kg)	
BaP	<-0.0050	BENZO (A) PYRENE (mg/kg)	
BbF	<-0.0050	BENZO (B) FLUORANTHENE (mg/kg)	
BkF	<-0.0050	BENZO (K) FLUORANTHENE (mg/kg)	
Chr	<-0.0050	CHRYSENE (mg/kg)	
DBahAnt	<-0.0050	DIBENZ (A,H) ANTHRACENE (mg/kg)	
FLU	<-0.0050	FLUORANTHENE (mg/kg)	
FL	<-0.0050	FLUORENE (mg/kg)	
1123cdPPY	<-0.0050	INSENO (1,2,3-CD) PYRENE (mg/kg)	
PPY	<-0.0050	PYRENE (mg/kg)	
1MN	<-0.0050	1-METHYLNAPHTHALENE (mg/kg)	
2MN	<-0.0050	2-METHYLNAPHTHALENE (mg/kg)	
B	<-0.0020	BENZENE (mg/kg)	
E	<-0.0050	ETHYL BENZENE (mg/kg)	
X	<-0.010	TOTAL XYLENES (mg/kg)	
124TMB	<-0.0050	1,2,4-TRIMETHYLBENZENE (mg/kg)	
135TMB	<-0.0050	1,3,5-TRIMETHYLBENZENE (mg/kg)	
N	<-0.0038	NAPHTHALENE (mg/kg)	
G	<-0.50	TPH-GRO (mg/kg)	
D	<-50	TPH-CRO (mg/kg)	
O	<-50	TPH-CRO (mg/kg)	
As	<-0.01	ARSENIC (mg/kg)	
Ba	<-0.01	BARIUM (mg/kg)	
CD	<-0.01	CADMIUM (mg/kg)	
CR(V)	<-0.01	CHROMIUM (mg/kg)	
CU	<-0.01	COPPER (mg/kg)	
FB	<-0.01	LEAD (mg/kg)	
NI	<-0.01	NICKEL (mg/kg)	
SE	<-0.01	SILICUM (mg/kg)	
AG	<-0.01	SILVER (mg/kg)	
Z	<-0.01	ZINC (mg/kg)	
		pH	<-0.01
		EC	7.00
		SAR	<1
		B	<-0.01
		EC	mmhos/cm
		B	mg/L

Figure 3
SOIL CHEMISTRY MAP
NOBLE ENERGY INC ~ TREBOR B11-15

SWSE Sec. 11, T5N, R64W, 6th PM
 Weld County, Colorado
 40.408712°, -104.515210°

Project No. CO23-313	API # 05-123-13522	Facility # 245727	
Date 8/5/24	Remediation # 30734	Filename 23313Q	

Photo Log



Description:

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Photo Log



Description:

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Photo Log



Description:

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