

# **FREMONT ENVIRONMENTAL INC.**

March 4, 2024

Mr. Daniel Peterson  
Noble Energy Inc.  
2115 117<sup>th</sup> Avenue  
Greeley, CO 80634

Subject:           **Facility Closure Data Submittal**  
Howard A09-06D  
API #: 05-123-33532  
SWNW Sec: 9 T6N R64W  
Weld County, Colorado  
Fremont Project No. C024-052  
Remediation # 31680

Dear Mr. Peterson:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted flowline closure activities for the Noble Energy Inc. (Noble) Howard A09-06D. Impacted soil was not encountered during abandonment activities. Details of the Howard A09-06D flowline closure activities are documented in the attached Closure Report. Groundwater was not encountered during flowline abandonment activities (confirm statement is true).

Please contact me at (336) 541-3048 if you require any additional information. Fremont appreciates the opportunity to provide this service.

Sincerely,

**FREMONT ENVIRONMENTAL INC.**



Aaron Otilar  
Consultant

Attachments:

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

# Flowline Closure Checklist

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

<i>Additional Attachments:</i>		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure
<i>Site Name &amp; COGCC Facility Number:</i>		<i>Date:</i>						<i>Remediation Project #:</i>
<i>Associated Wells:</i>		<i>Age of Site:</i>						<i>Number of Photos Attached:</i>

*Starting point: (GPS coordinates and descriptions)*

*End point: (GPS coordinates and descriptions)*

*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)*

### Flowlines

<i>Flowline type</i>								
<i>Depth</i>								
<i>Age</i>								
<i>Length</i>								
<i>Construction Material</i>								
<i>Were flowlines pulled?</i>								
<i>Visual Integrity of lines</i>								
<i>Visual impacts if trenched</i>								
<i>PID Readings if trenched</i>								
<i>Sample taken?</i>								
<i>Location/Sample ID#</i>								
<i>Photo Number(s)</i>								

*Other observations regarding on location flowlines:*

### 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>		

**TABLE 1**  
**FIELD DATA SUMMARY TABLE**  
**NOBLE 100322**  
**HOWARD USX A09-06D FLOWLINE, WELD COUNTY, COLORADO**  
**REM # 31680**

Sample ID	Sample Date	Depth (ft)	GPS Data		PDOP Value	VOC Concentration (ppm)
			Latitude	Longitude		
FL01 2FT	03/05/2024	2	40.50398840	-104.55989260	-	5.9
FL02@2'	03/05/2024	2'	40.50399390	-104.56142120	-	6.4
FL03@3'	03/05/2024	3'	40.50399560	-104.56213170	-	6.3
FL04@4'	03/05/2024	4'	40.50414330	-104.56285840	-	6.1
FL05@2'	03/05/2024	2'	40.50447740	-104.56322890	-	10.4
FL06@2'	03/05/2024	2'	40.50449620	-104.56319830	-	11.3
BKG01@0.5'	03/05/2024	0.5'	40.50486410	-104.56287000	-	0.0
BKG01@2'	03/05/2024	2'	40.50486410	-104.56287000	-	0.0
BKG01@5'	03/05/2024	5'	40.50486410	-104.56287000	-	0.0
BKG02@0.5'	03/05/2024	0.5'	40.50476310	-104.56287280	-	0.0
BKG02@2'	03/05/2024	2'	40.50476310	-104.56287280	-	0.0
BKG02@5'	03/05/2024	5'	40.50476310	-104.56287280	-	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  
HOWARD USX A09-06D FLOWLINE, WELD COUNTY, COLORADO  
REM # 31680

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 2FT	03/05/2024	2	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL02@2'	03/05/2024	2'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL03@3'	03/05/2024	3'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL04@4'	03/05/2024	4'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL05@2'	03/05/2024	2'	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<500	<0.50	<50	<50
FL06@2'	03/05/2024	2'	<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  
HOWARD USX A09-06D FLOWLINE, WELD COUNTY, COLORADO  
REM # 31680

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 2FT	03/05/2024	2	<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
FL02@2'	03/05/2024	2'	<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
FL03@3'	03/05/2024	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
FL04@4'	03/05/2024	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
FL05@2'	03/05/2024	2'	<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
FL06@2'	03/05/2024	2'	<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**  
**HOWARD USX A09-06D FLOWLINE, WELD COUNTY, COLORADO**  
**REM # 31680**

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 2FT	03/05/2024	2	8.20	0.344	0.311	<2.00
FL02@2'	03/05/2024	2'	<b>9.58</b>	0.173	0.564	<2.00
FL03@3'	03/05/2024	3'	<b>8.52</b>	0.210	1.020	<2.00
FL04@4'	03/05/2024	4'	8.00	0.356	0.435	<2.00
FL05@2'	03/05/2024	2'	<b>8.76</b>	0.135	0.139	<2.00
FL06@2'	03/05/2024	2'	<b>8.74</b>	0.128	0.073	<2.00
BKG01@0.5'	03/05/2024	0.5'	8.10	0.343	0.623	<2.00
BKG01@2'	03/05/2024	2'	<b>8.66</b>	0.268	1.640	<2.00
BKG01@5'	03/05/2024	5'	<b>8.71</b>	0.475	1.530	<2.00
BKG02@0.5'	03/05/2024	0.5'	8.06	0.326	0.614	<2.00
BKG02@2'	03/05/2024	2'	<b>8.77</b>	0.234	1.480	<2.00
BKG02@5'	03/05/2024	5'	<b>8.66</b>	0.615	1.690	<2.00
Maximum Root Background Concentration (0 - 3 ft)			<b>8.77</b>	0.343	1.640	NA
Average Root Background Concentration (0 - 3 ft)			<b>8.40</b>	0.293	1.089	NA
Maximum Background Concentration			<b>8.77</b>	0.615	1.690	NA
Average Background Concentration			<b>8.49</b>	0.377	1.263	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  
HOWARD USX A09-06D FLOWLINE, WELD COUNTY, COLORADO  
REM # 31680

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 2FT	03/05/2024	2	<b>3.57</b>	<b>146.0</b>	0.286	<0.30	6.37	7.98	5.74	<0.260	0.0372	23.9
FL02@2'	03/05/2024	2'	<b>2.61</b>	<b>109.0</b>	0.258	<0.30	4.35	7.98	4.22	<0.260	0.0311	23.9
FL03@3'	03/05/2024	3'	<b>6.34</b>	<b>88.4</b>	0.347	<0.30	9.73	12.70	8.08	<0.260	0.0758	28.3
FL04@4'	03/05/2024	4'	<b>4.02</b>	<b>85.9</b>	0.372	<0.30	23.70	11.10	6.11	<b>0.291</b>	0.0363	36.8
FL05@2'	03/05/2024	2'	<b>4.83</b>	<b>96.1</b>	0.338	<0.30	6.98	9.91	6.53	<0.260	0.0449	27.0
FL06@2'	03/05/2024	2'	<b>7.08</b>	<b>128.0</b>	<b>0.415</b>	<0.30	8.65	12.20	7.43	<0.260	0.0682	30.3
BKG01@0.5'	03/05/2024	0.5'	<b>4.52</b>	<b>89.7</b>	<b>0.395</b>	<0.30	18.50	12.70	6.26	<b>0.296</b>	0.0487	31.5
BKG01@2'	03/05/2024	2'	<b>7.09</b>	<b>136.0</b>	<b>0.472</b>	<0.30	10.30	<b>15.70</b>	8.81	<b>0.262</b>	0.0879	31.6
BKG01@5'	03/05/2024	5'	<b>2.51</b>	<b>84.7</b>	0.331	<0.30	5.25	7.38	5.90	<0.260	0.0368	20.8
BKG02@0.5'	03/05/2024	0.5'	<b>3.99</b>	<b>84.6</b>	0.348	<0.30	26.70	11.40	6.04	<b>0.294</b>	0.0417	31.3
BKG02@2'	03/05/2024	2'	<b>6.72</b>	<b>136.0</b>	<b>0.454</b>	<0.30	9.41	<b>15.90</b>	8.00	0.260	0.0799	32.0
BKG02@5'	03/05/2024	5'	<b>3.08</b>	<b>135.0</b>	<b>0.581</b>	<0.30	6.53	10.50	6.66	<0.260	0.0531	23.7
Maximum Root Zone Background Concentration (0 - 3 ft)			<b>7.09</b>	<b>136.0</b>	0.472	NA	26.70	<b>15.90</b>	8.81	<b>0.296</b>	0.0879	32.0
125% Average Root Zone Background Concentration (0 - 3 ft)			<b>5.58</b>	<b>111.6</b>	0.417	NA	16.23	13.93	7.28	<b>0.278</b>	0.0646	31.6
Maximum Background Concentration			<b>7.09</b>	<b>136.0</b>	0.581	NA	26.70	<b>15.90</b>	8.81	<b>0.296</b>	0.0879	32.0
125% Average Background Concentration			<b>5.81</b>	<b>138.8</b>	0.538	NA	15.98	<b>15.33</b>	8.68	<b>0.348</b>	0.0725	35.6

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

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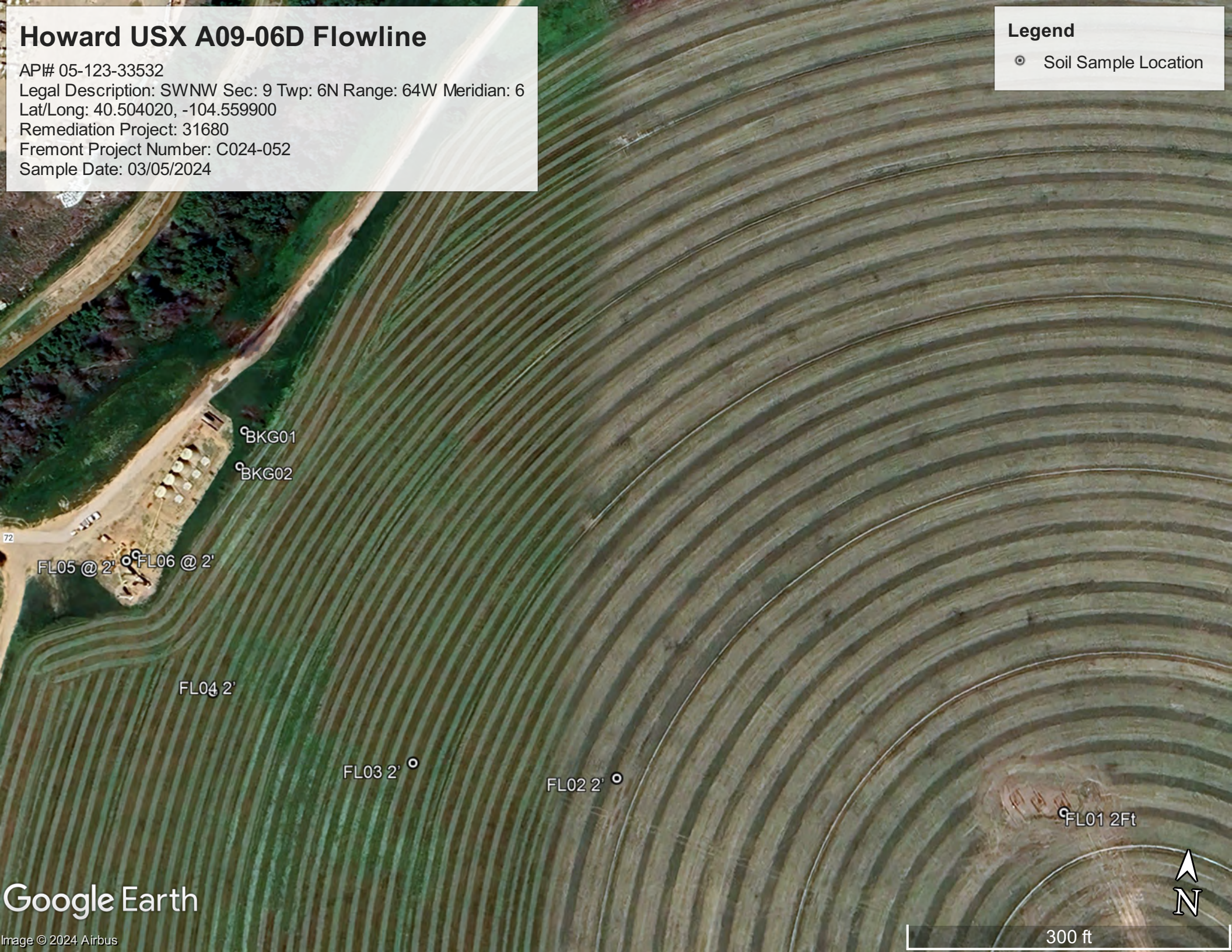
= Material excavated and transported off site for disposal.

# Howard USX A09-06D Flowline

API# 05-123-33532  
Legal Description: SWNW Sec: 9 Twp: 6N Range: 64W Meridian: 6  
Lat/Long: 40.504020, -104.559900  
Remediation Project: 31680  
Fremont Project Number: C024-052  
Sample Date: 03/05/2024

**Legend**

- Soil Sample Location



BKG01

BKG02

FL05 @ 2' FL06 @ 2'

FL04 2'

FL03 2'

FL02 2'

FL01 2ft

300 ft



**Description:**

#1 Howard USX A09-06D Flowline - FL04 @2'

# Photo Log



**Description:**

#2 Howard USX A09-06D Flowline - FL03 @2'

# Photo Log



***Description:***

#3 Howard USX A09-06D Flowline - FL02 @2'

# Photo Log



**Description:**

#4 Howard USX A09-06D Flowline - FL01 @ 2'

# Photo Log



***Description:***

#5 Howard A09-19 Facility - FL05 @2'

# Photo Log



**Description:**

#6 Howard A09-19 Facility - FL06 @ 2'