



CDH Consulting, LLC
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Flowline Closure Investigation and Environmental Summary

FEUERSTEIN I28-63-1HN FLOWLINE
ECMC Remediation Project #33105
Weld County, Colorado

Attachments:

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Attachment B: Flowline Closure Checklist



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FIGURES

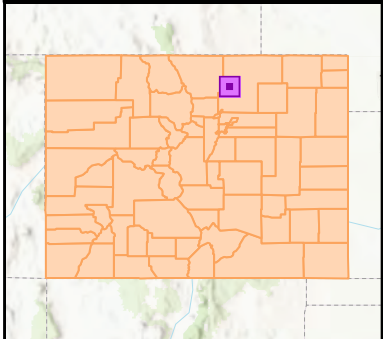
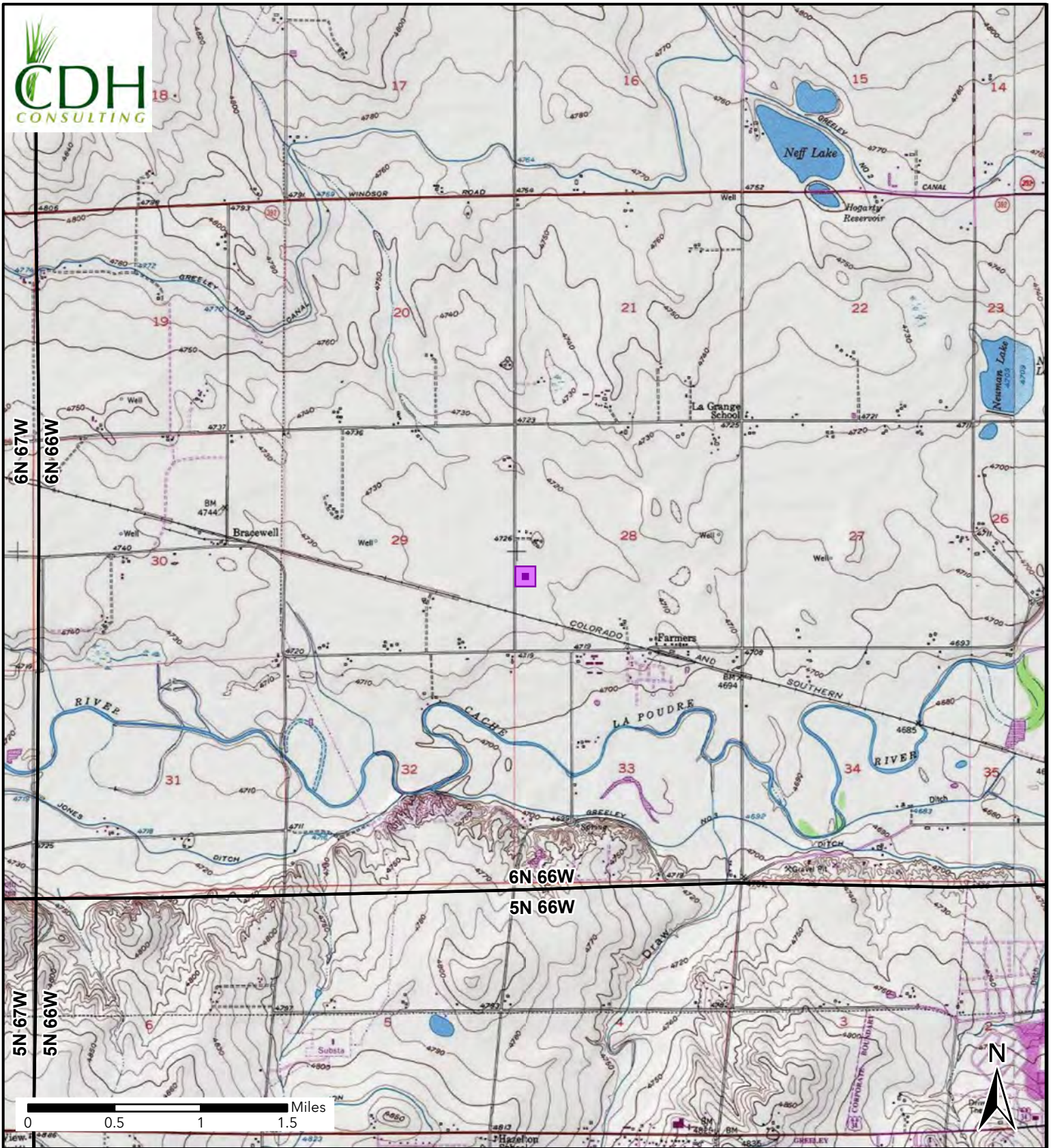

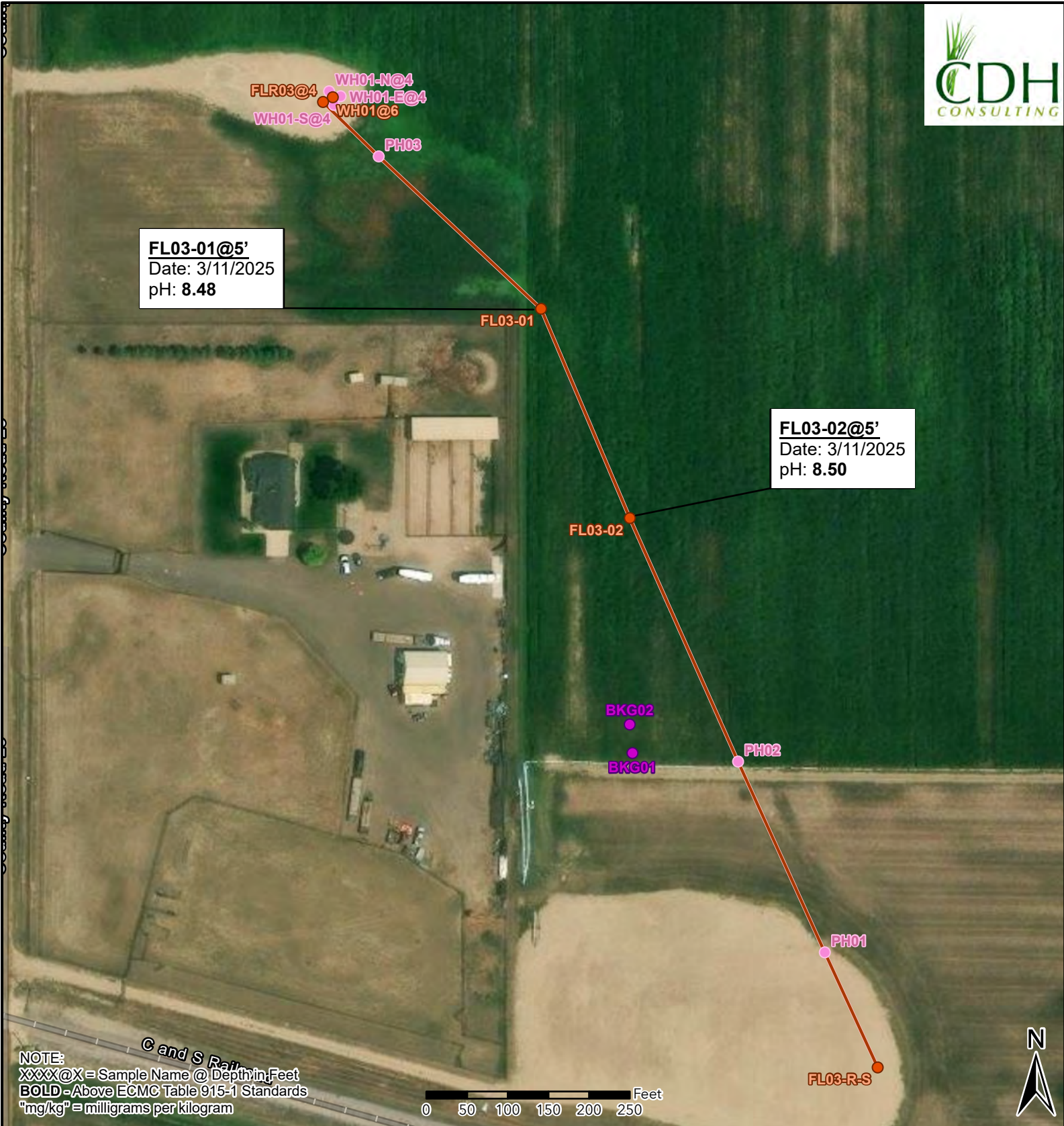


Figure 1
Site Location
FEUERSTEIN I28-63-1HN WH
NWSW SEC 28-T6N-R66W
Weld County, Colorado
Noble Energy Inc

 Site Location



NOTE:
 XXXX@X = Sample Name @ Depth in Feet
BOLD - Above ECMC Table 915-1 Standards
 "mg/kg" = milligrams per kilogram



Figure 2
Soil Sample and
Field Screening Locations
FEUERSTEIN I28-63-1HN
 NWSW SEC 28-T6N-R66W
 Weld County, Colorado
 Noble Energy Inc.

- Site Location
- Soil Sample
- Background Sample
- Screening Point
- Flowline Removed

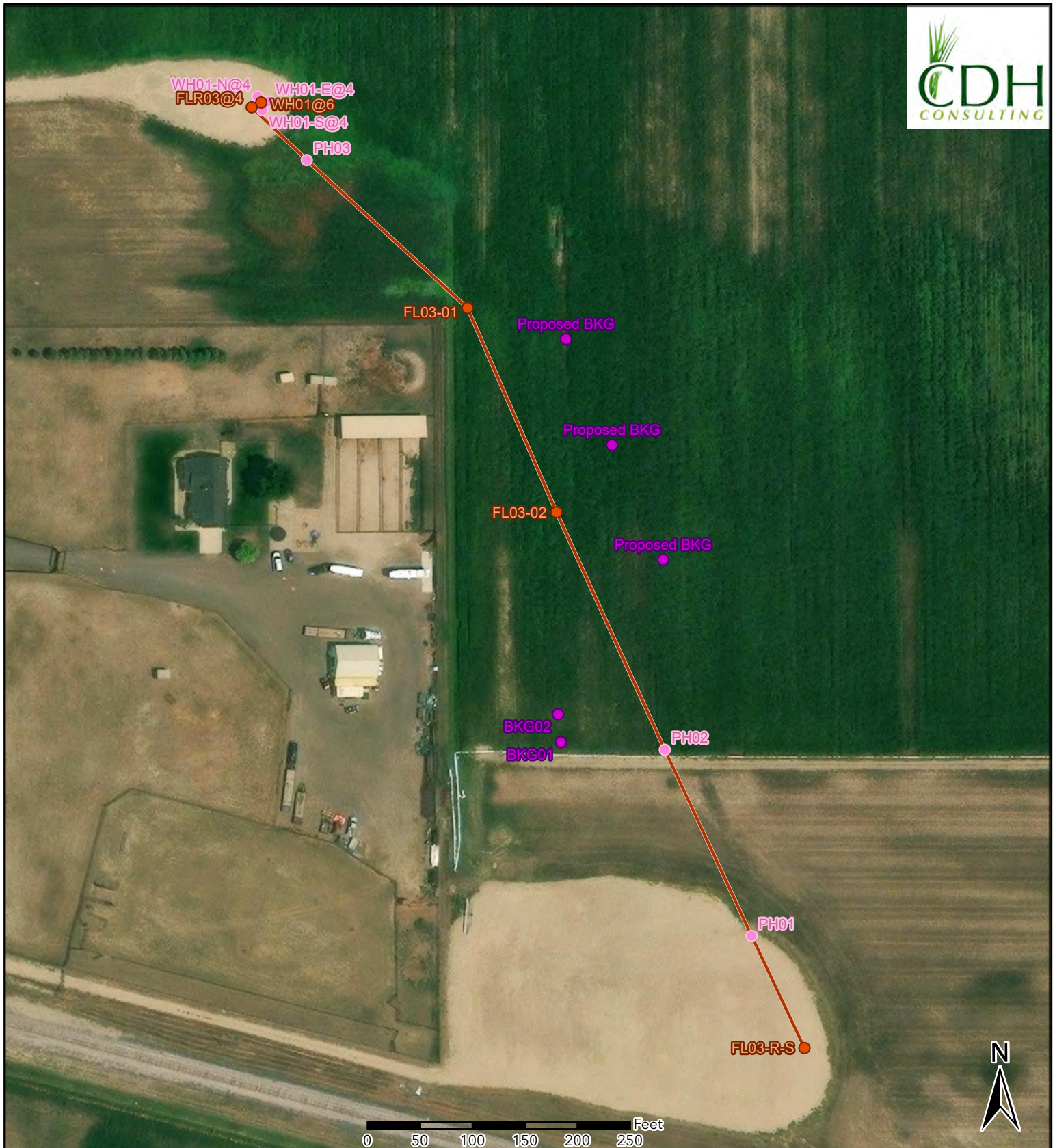


Figure 3
Supplemental Site Investigation Map
FEUERSTEIN I28-63-1HN
 NWSW SEC 28-T6N-R66W
 Weld County, Colorado
 Noble Energy Inc.

- Soil Sample
- Background Sample
- Screening Point
- Flowline Removed



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TABLES

TABLE 1
FIELD DATA SUMMARY TABLE
NOBLE 100322
FEUERSTEIN I28-63-1HN FLOWLINE, WELD COUNTY, COLORADO
REM # 33105

| Sample ID | Sample Date | Depth (ft) | GPS Data | | PDOP Value | VOC Concentration (ppm) |
|-------------|-------------|------------|-----------|-------------|------------|-------------------------|
| | | | Latitude | Longitude | | |
| FL03-01@5' | 3/11/2025 | 5 | 40.456166 | -104.790575 | 1.000000 | 1.1 |
| FL03-02@5' | 3/11/2025 | 5 | 40.455630 | -104.790276 | 1.100000 | 44.5 |
| FL03-R-S@5' | 3/11/2025 | 5 | 40.454224 | -104.789443 | 1.100000 | 26.0 |
| PH01 | 3/11/2025 | 5 | 40.454520 | -104.789620 | 0.900000 | 2.8 |
| PH02 | 3/11/2025 | 5 | 40.455007 | -104.789912 | 1.200000 | 15.7 |
| PH03 | 3/11/2025 | 5 | 40.456556 | -104.791120 | 0.900000 | 2.2 |
| BKG01@5' | 3/12/2025 | 5 | 40.455029 | -104.790267 | 1.000000 | 0.3 |
| BKG02@5' | 3/12/2025 | 5 | 40.455102 | -104.790277 | 1.500000 | 0.2 |

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

ft = Feet

TABLE 2
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE 100322
FEUERSTEIN I28-63-1HN FLOWLINE, WELD COUNTY, COLORADO
REM # 33105

| 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** | | |
| FL03-01@5' | 3/11/2025 | 5 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.002 | <125.200 | <0.200 | <25.0 | <100 |
| FL03-02@5' | 3/11/2025 | 5 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.002 | <125.200 | <0.200 | <25.0 | <100 |
| FL03-R-S@5' | 3/11/2025 | 5 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.002 | <125.200 | <0.200 | <25.0 | <100 |

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
AP = Analysis pending
NA = Not analyzed

TABLE 3
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE 100322
FEUERSTEIN I28-63-1HN FLOWLINE, WELD COUNTY, COLORADO
REM # 33105

| 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 |
| FL03-01@5' | 3/11/2025 | 5 | <0.020 | <0.020 | <0.005 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.002 | <0.002 |
| FL03-02@5' | 3/11/2025 | 5 | <0.020 | <0.020 | <0.005 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.002 | <0.002 |
| FL03-R-S@5' | 3/11/2025 | 5 | <0.00386 | <0.00386 | <0.00386 | <0.00386 | <0.00386 | <0.00386 | <0.00386 | <0.00386 | <0.00386 | <0.00386 | <0.00386 | <0.00386 | <0.00386 | <0.00386 |

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
AP = Analysis pending
NA = Not analyzed

TABLE 4
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
NOBLE 100322
FEUERSTEIN I28-63-1HN FLOWLINE, WELD COUNTY, COLORADO
REM # 33105

| 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 |
| FL03-01@5' | 3/11/2025 | 5 | 8.48 | 0.597 | 1.83 | 0.345 |
| FL03-02@5' | 3/11/2025 | 5 | 8.50 | 0.591 | 1.56 | 0.42 |
| FL03-R-S@5' | 3/11/2025 | 5 | 8.44 | 0.260 | 0.211 | 0.231 |
| BKG01@5' | 3/12/2025 | 5 | 8.44 | 0.688 | 2.23 | 0.387 |
| BKG02@5' | 3/12/2025 | 5 | 8.42 | 0.731 | 2.22 | 0.424 |
| Maximum Background Concentration | | | 8.44 | 0.731 | 2.23 | 0.424 |

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.

AP = Analysis pending

NA = Not analyzed

TABLE 5
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE 100322
FEUERSTEIN I28-63-1HN FLOWLINE, WELD COUNTY, COLORADO
REM # 33105

| 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 |
| FL03-01@5' | 3/11/2025 | 5 | 5.22 | 90.6 | 0.143 | <0.306 * | <9.74 | 7.94 | 11.0 | <0.253 | <0.0974 | 36.6 |
| FL03-02@5' | 3/11/2025 | 5 | 4.22 | 79.4 | 0.136 | <0.314 * | <8.80 | 6.49 | 9.28 | 0.240 | <0.0880 | <32.6 |
| FL03-R-S@5' | 3/11/2025 | 5 | 4.35 | 77.9 | 0.120 | <0.403 * | <9.41 | 6.04 | 8.84 | <0.245 | <0.0941 | <34.8 |
| BKG01@5' | 3/12/2025 | 5 | 4.96 | 94.4 | 0.146 | <0.5 * | <9.20 | 7.25 | 10.2 | 0.263 | <0.0920 | 35.7 |
| BKG02@5' | 3/12/2025 | 5 | 4.49 | 96.5 | 0.139 | <0.5 * | <9.19 | 7.15 | 10.9 | <0.239 | <0.0919 | <34.0 |
| 1.25x Maximum Background Concentration | | | 6.20 | 120.6 | 0.183 | NA | NA | 9.06 | 13.63 | 0.329 | NA | 44.6 |

- Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within 1.25x background concentrations.
- Red** faced values exceed the ECMC Table 915-1 limit(s) and native background concentrations.
- Red & blue highlighted soil analytical values indicate an exceedance of the referenced soil screening level (SSL).
- 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

* Indicates laboratory minimum detection limit in excess of SSL

AP = Analysis pending

NA = Not analyzed



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ATTACHMENT A
PHOTOGRAPHIC LOG

Attachment A - Photographic Log

Feuerstein I28-63-1HN REM #33105

Noble Energy Inc.

3/11 & 3/12/2025

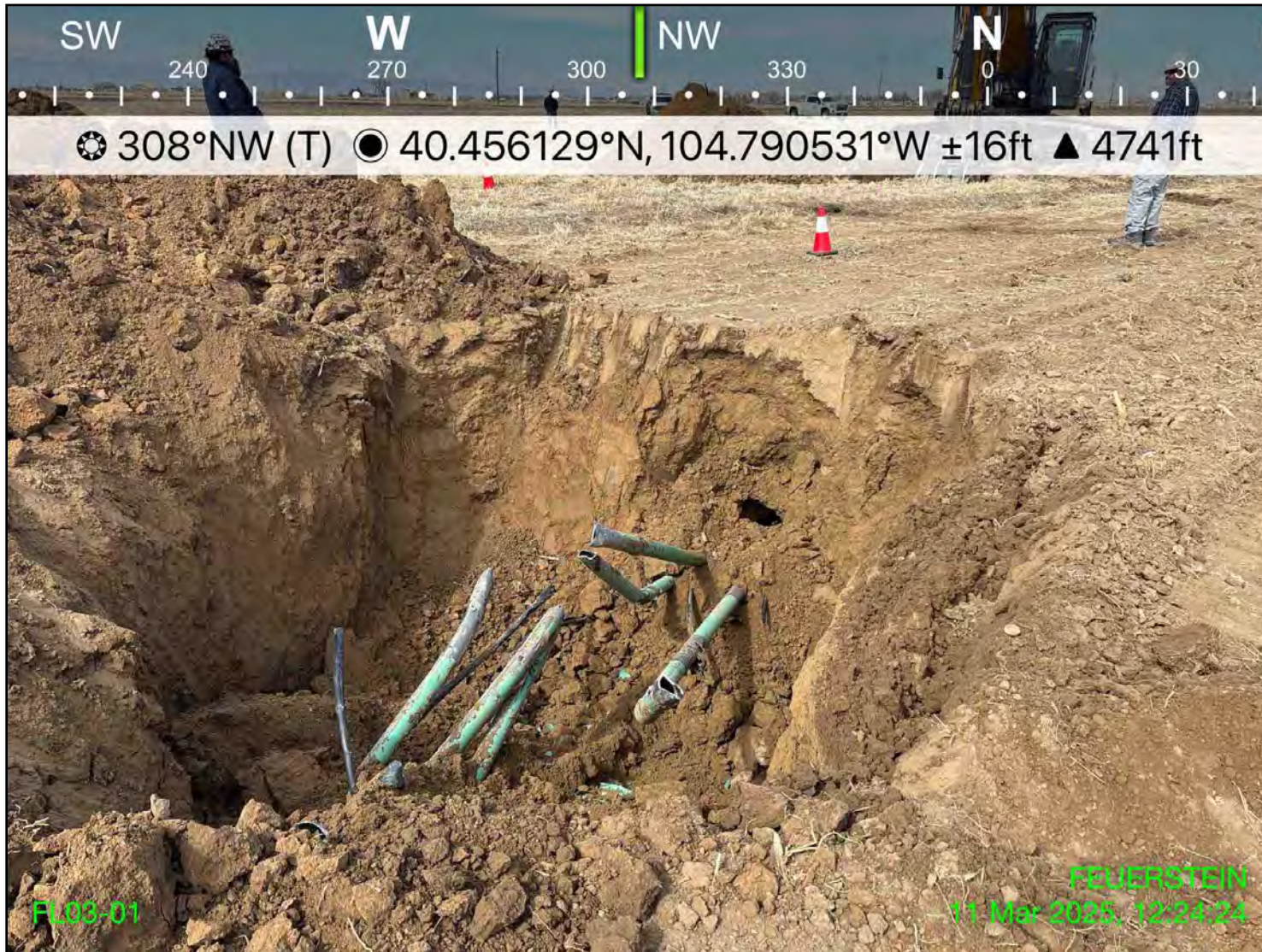


Photo 1: View of FL03-01, facing northwest

Attachment A - Photographic Log

Feuerstein I28-63-1HN REM #33105

Noble Energy Inc.

3/11 & 3/12/2025



Photo 2: View of FL03-02, facing northwest

Attachment A - Photographic Log

Feuerstein I28-63-1HN REM #33105

Noble Energy Inc.

3/11 & 3/12/2025



Photo 3: View of FL03-R-S, facing northwest

Attachment A - Photographic Log

Feuerstein I28-63-1HN REM #33105

Noble Energy Inc.

3/11 & 3/12/2025



Photo 4: View of pothole location 1, facing northwest

Attachment A - Photographic Log

Feuerstein I28-63-1HN REM #33105

Noble Energy Inc.

3/11 & 3/12/2025

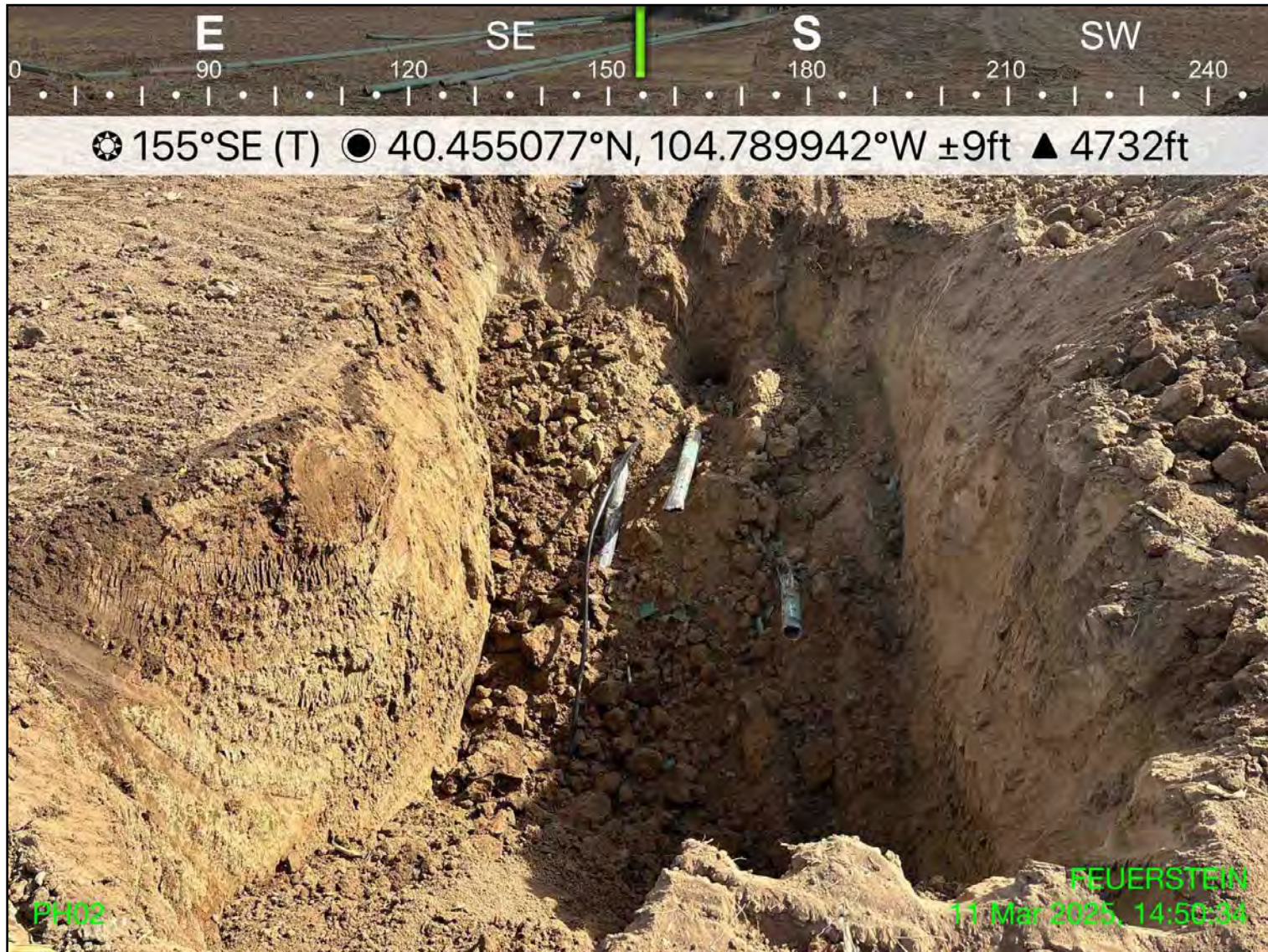


Photo 5: View of pothole location 2, facing southeast

Attachment A - Photographic Log

Feuerstein I28-63-1HN REM #33105

Noble Energy Inc.

3/11 & 3/12/2025

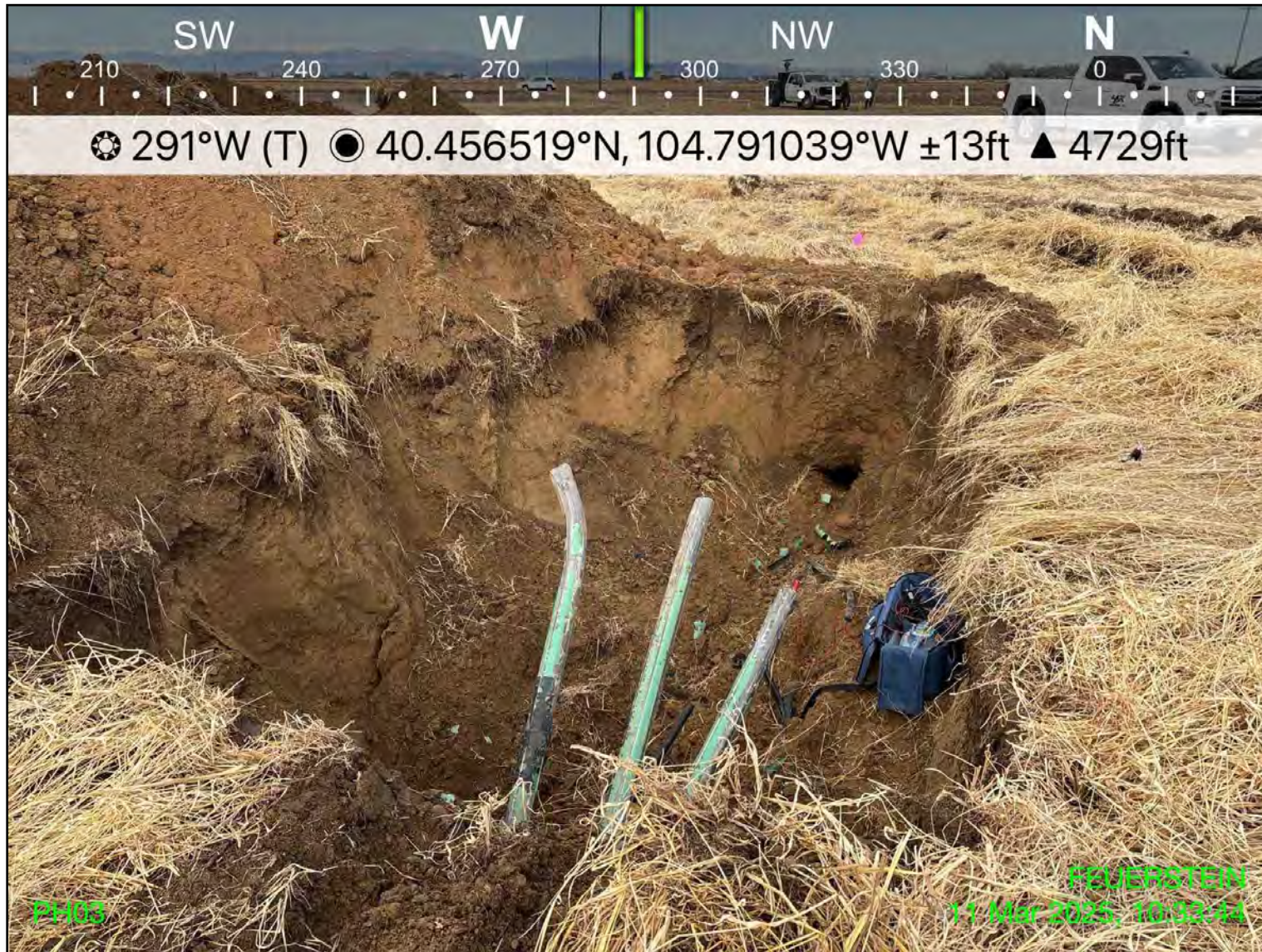


Photo 6: View of pothole location 3, facing west

Attachment A - Photographic Log

Feuerstein I28-63-1HN REM #33105

Noble Energy Inc.

3/11 & 3/12/2025

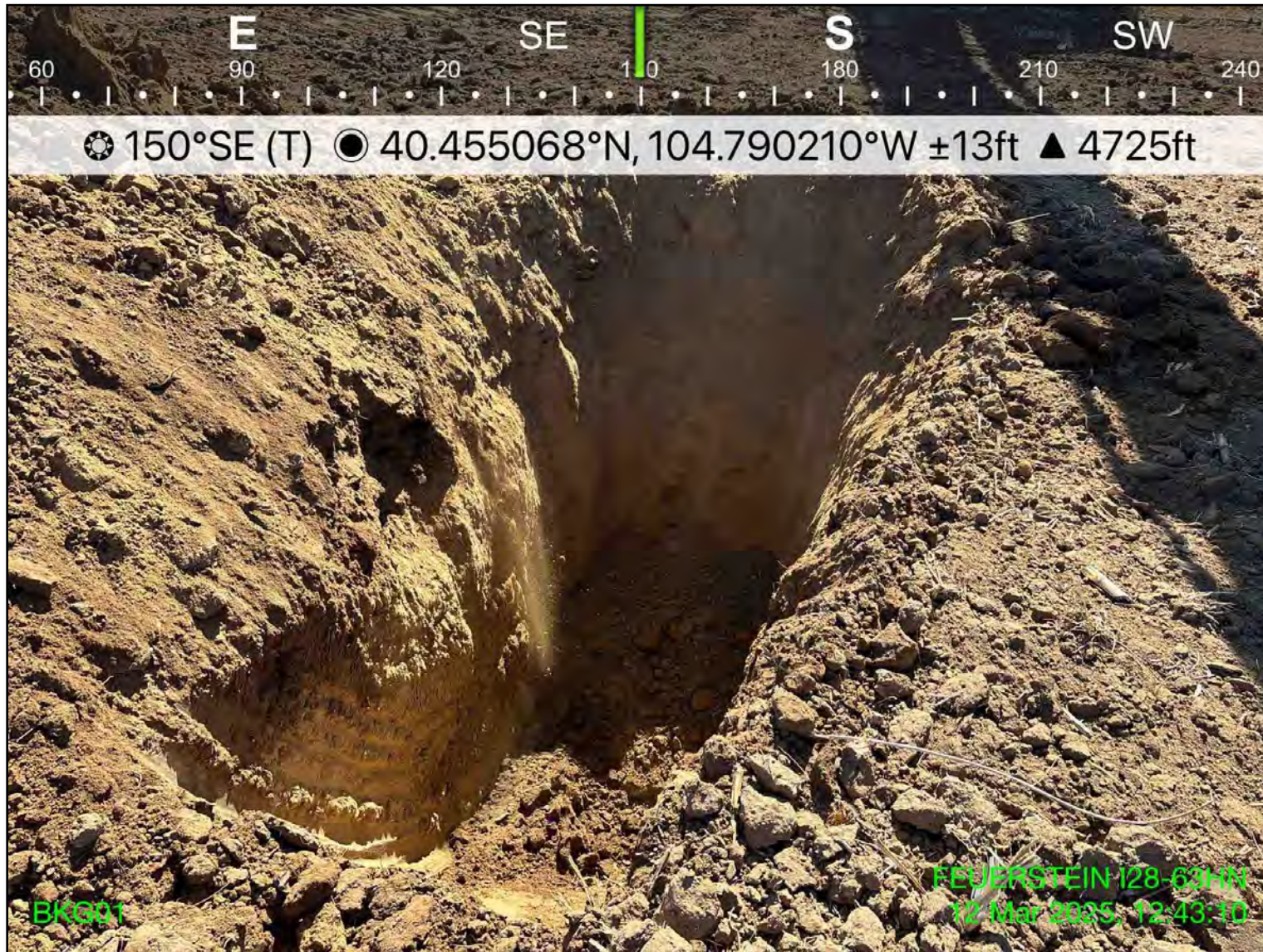


Photo 7: View of background sample location 1, facing southeast

Attachment A - Photographic Log

Feuerstein I28-63-1HN REM #33105

Noble Energy Inc.

3/11 & 3/12/2025



Photo 8: View of background location 2, facing southeast



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ATTACHMENT B
FLOWLINE CLOSURE CHECKLISTS

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 | |
|--|-------------------|-------------------------------|--|------------------|--|-------------|--|---------------------------------|--|
| Site Name & COGCC Facility Number: : Feuerstein I28-63-1HN 123-36661 | | Date: 3/11/2025 and 3/12/2025 | | | | | | Remediation Project #: 33105 | |
| Associated Wells: Feuerstein I28-63-1HN | | Age of Site: 5/7/2013 | | | | | | Number of Photos Attached: 8 | |
| Starting point: (GPS coordinates and descriptions) 40.456702/-104.791281 | | | | | | | | | |
| End point: (GPS coordinates and descriptions) 40.454174/-104.789481 | | | | | | | | | |
| USCS Soil Type: well graded sands and poorly graded sands | | | | | Estimated Depth to Groundwater: No groundwater encountered | | | | |
| 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 | Multiphase | | | | | | | | |
| Depth | 5 ft bgs | | | | | | | | |
| Age | 5/7/2013 | | | | | | | | |
| Length | 1103 ft | | | | | | | | |
| Construction Material | Steel | | | | | | | | |
| Were flowlines pulled? | Yes | | | | | | | | |
| Visual Integrity of lines | Good | | | | | | | | |
| Visual impacts if trenched | None | | | | | | | | |
| PID Readings if trenched | 44.5 ppm | | | | | | | | |
| Sample taken? Location/Sample ID# | Yes, see attached | | | | | | | | |
| Photo Number(s) | See attached | | | | | | | | |
| Other observations regarding on loction flowlines: Common trenched | | | | | | | | | |
| Summary | | | | | | | | | |
| Was impacted soil identified? No Yes - less than 10 cubic yards Yes - more than 10 cubic yards | | | | | | | | | |
| Total number of samples field screened: 6 | | | | | Total number of samples collected: 3 | | | | |
| Highest PID Reading: 44.5 ppm | | | | | 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: | | | | |
| 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: | | | | | | | | | |