



CDH Consulting, LLC
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Flowline Closure Investigation and Environmental Summary

LYSTER E26-23 Flowline
ECMC Remediation Project #34506
Weld County, Colorado

Attachments:

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Figure 2 – Soil Sample and Field Screening Locations Map

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Attachment A: Photographic Log

Attachment B: Flowline Closure Checklist



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FIGURES

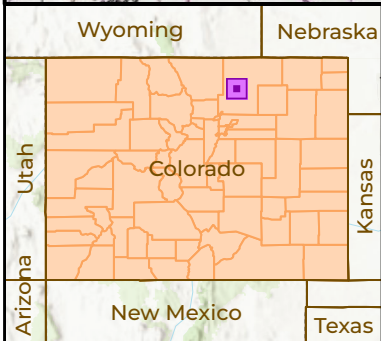
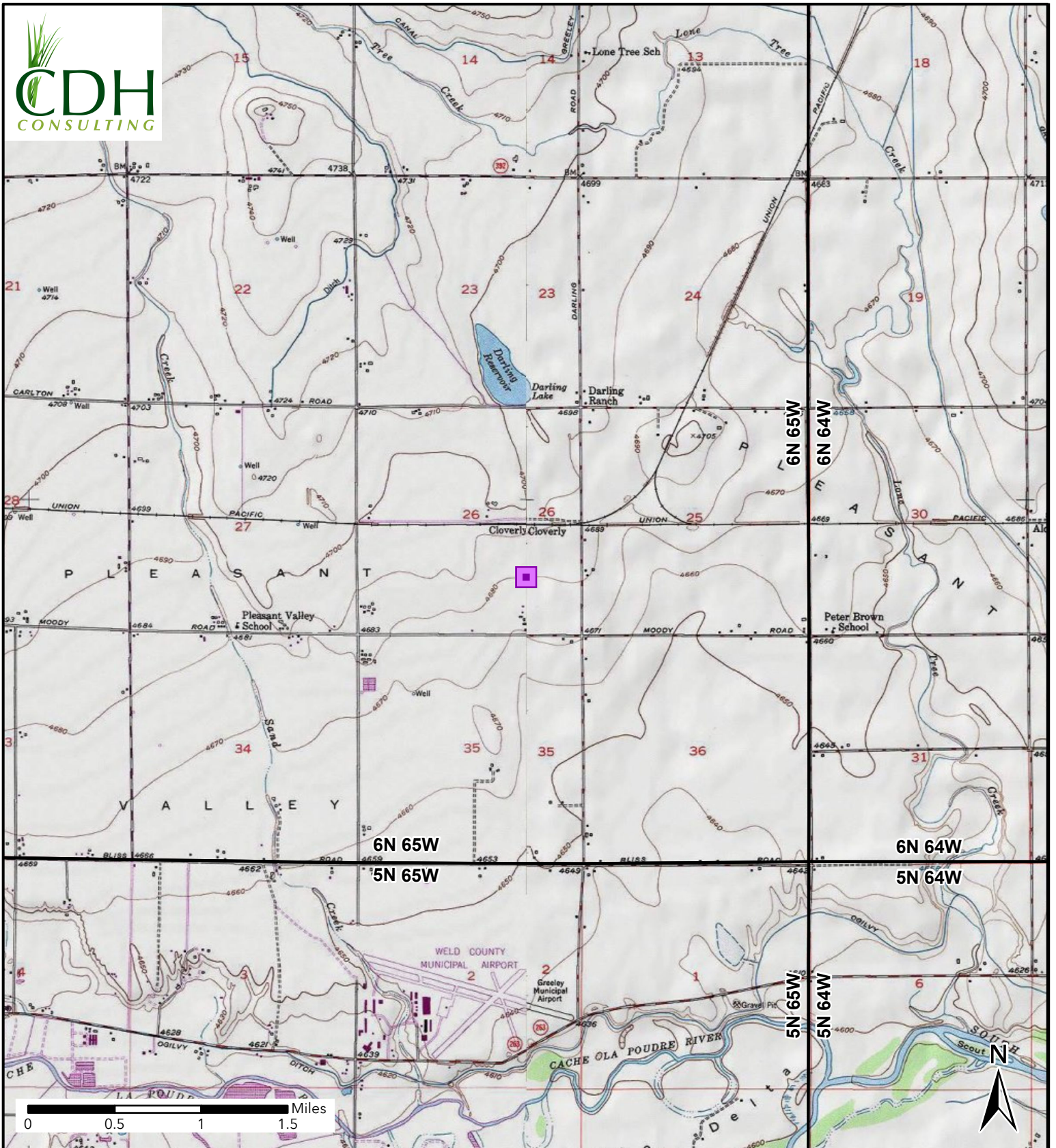


Figure 1
Site Location
LYSTER E26-23 FL
NESE-SEC 26-T6N-R65W
Weld County, Colorado
Noble Energy Inc.

 Site Location

BKG02@4'

FL03-02@4'

FL03-PH02@4'

FL03-PH03@4'

FL03-03@4'

BKG03@4'

FL03-PH01@4'

FL03-02@4'
 Date: 3/28/2025
 Naphthalene: **0.11** mg/kg
 Benzo (a) Anthracene: **0.480** mg/kg
 Benzo (a) Pyrene: **0.433** mg/kg
 Benzo (b) Fluoranthene: **0.529** mg/kg
 Dibenzo (a,h) Anthracene: **0.159** mg/kg
 1-Methyl - Naphthalene: **0.0453** mg/kg
 2-Methyl- Naphthalene: **0.0808** mg/kg

NOTE:
 BKG02@4' is from LYSTER E26-15FL
 XXXX@X = Sample Name @ Depth in Feet
 BOLD - Above ECOM Table 915-1 Standards
 "mg/kg" = milligrams per kilogram

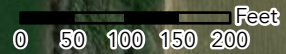


Figure 2
Sample Locations Map
 LYSTER E26-23 FL
 NESE-SEC 26-T6N-R65W
 Weld County, Colorado
 Noble Energy Inc.

- Site Location
- Soil Sample
- Background Sample
- Screening Point
- Sample With Observed Impacts
- Flowline Abandoned In Place
- Flowline Removed

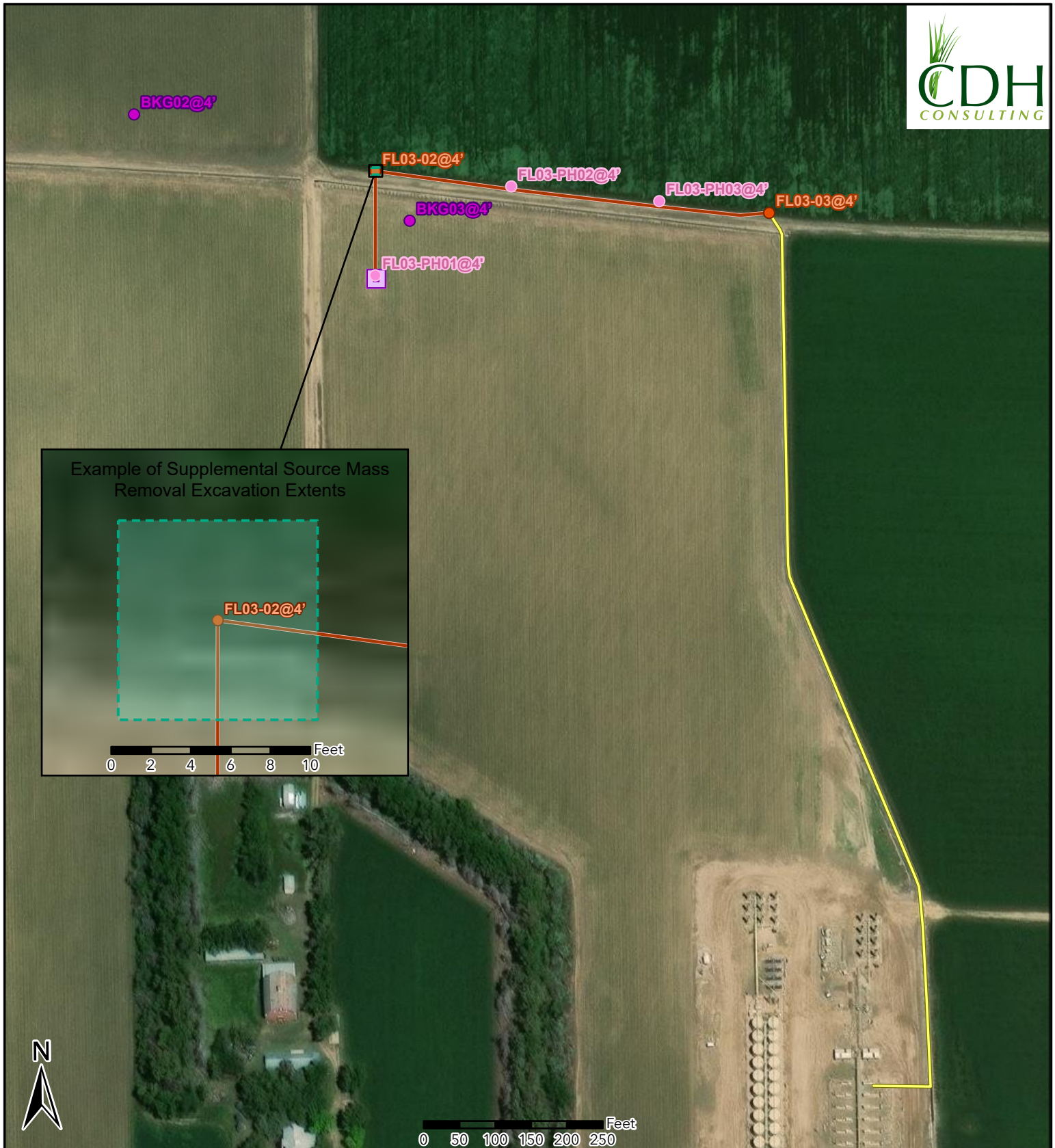


Figure 3 Supplemental Source Mass Removal Map

LYSTER E26-23 FL
NESE-SEC 26-T6N-R65W
Weld County, Colorado
Noble Energy Inc.

- Soil Sample
- Screening Point
- Background Sample
- Flowline Abandoned In Place
- Flowline Removed
- 10' x 10' Proposed Excavation



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TABLES

TABLE 1
FIELD DATA SUMMARY TABLE
NOBLE 100322
LYSTER E26-23, WELD COUNTY, COLORADO
REM # 34506

Sample ID	Sample Date	Depth (ft)	GPS Data		PDOP Value	VOC Concentration (ppm)
			Latitude	Longitude		
FL03-02@4'	3/28/2025	4	40.453781	-104.625457	1.00000	12.7
FL03-03@4'	3/28/2025	4	40.453606	-104.623483	1.30000	0.0
FL03-PH01@4'	3/28/2025	4	40.453381	-104.625462	1.00000	1.5
FL03-PH02@4'	3/28/2025	4	40.453717	-104.624776	1.20000	5.0
FL03-PH03@4'	3/28/2025	4	40.453655	-104.624034	1.30000	1.6
BKG03@4'	3/28/2025	4	40.453589	-104.625287	1.00000	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

ft = Feet

TABLE 2
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE 100322
LYSTER E26-23, WELD COUNTY, COLORADO
REM # 34506

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**		
FL03-02@4'	3/28/2025	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	0.11	<100.50	<0.50	<50	<50
FL03-03@4'	3/28/2025	4	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<100.50	<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

TABLE 3
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE 100322
LYSTER E26-23, WELD COUNTY, COLORADO
REM # 34506

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
FL03-02@4'	3/28/2025	4	0.222	0.571	0.480	0.433	0.529	0.200	0.500	0.159	0.913	0.355	0.504	0.764	0.0453	0.0808
FL03-03@4'	3/28/2025	4	<0.00500	0.0120	0.0104	0.00673	0.0110	<0.00500	0.0112	<0.00500	0.0333	0.00575	0.00566	0.0234	<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

AP = Analysis pending

NA = Not analyzed

TABLE 4
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
NOBLE 100322
LYSTER E26-23, WELD COUNTY, COLORADO
REM # 34506

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
FL03-02@4'	3/28/2025	4	8.33	0.544	0.556	<2.00
FL03-03@4'	3/28/2025	4	8.35	0.390	0.426	<2.00
BKG03@4'	3/28/2025	4	8.39	0.565	1.13	<2.00
Maximum Background Concentration			8.39	0.565	1.13	NA

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
LYSTER E26-23, WELD COUNTY, COLORADO
REM # 34506

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
FL03-02@4'	3/28/2025	4	4.02	110	0.243	<0.30 *	3.96	5.98	4.55	<0.260	0.0231	15.5
FL03-03@4'	3/28/2025	4	3.87	70.2	0.213	<0.30 *	5.65	6.05	5.41	<0.260	0.0329	23.4
BKG03@4'	3/28/2025	4	2.86	81.2	<0.200	<0.30 *	2.88	4.78	3.93	<0.260	<0.0200	13.3
1.25x Maximum Background Concentration			3.58	102	NA	NA	3.60	5.98	4.91	NA	NA	16.6

1. **Bold** faced values exceed the ECMC Table 915-1 limit(s), but are within 1.25x background concentrations.

2. **Red** 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

* 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

LYSTER E26-23 FL REM #34506

Noble Energy Inc.

3/28/2025



Photo 1: View of FL03-02 excavation area, facing south

Attachment A - Photographic Log

LYSTER E26-23 FL REM #34506

Noble Energy Inc.

3/28/2025



Photo 2: View of FL03-03 excavation area, facing south

Attachment A - Photographic Log

LYSTER E26-23 FL REM #34506

Noble Energy Inc.

3/28/2025



Photo 3: View of BKG01 sample location, facing west

Attachment A - Photographic Log

LYSTER E26-23 FL REM #34506

Noble Energy Inc.

3/28/2025



Photo 4: View of FL03-PH01 screening location, facing southwest

Attachment A - Photographic Log

LYSTER E26-23 FL REM #34506

Noble Energy Inc.

3/28/2025

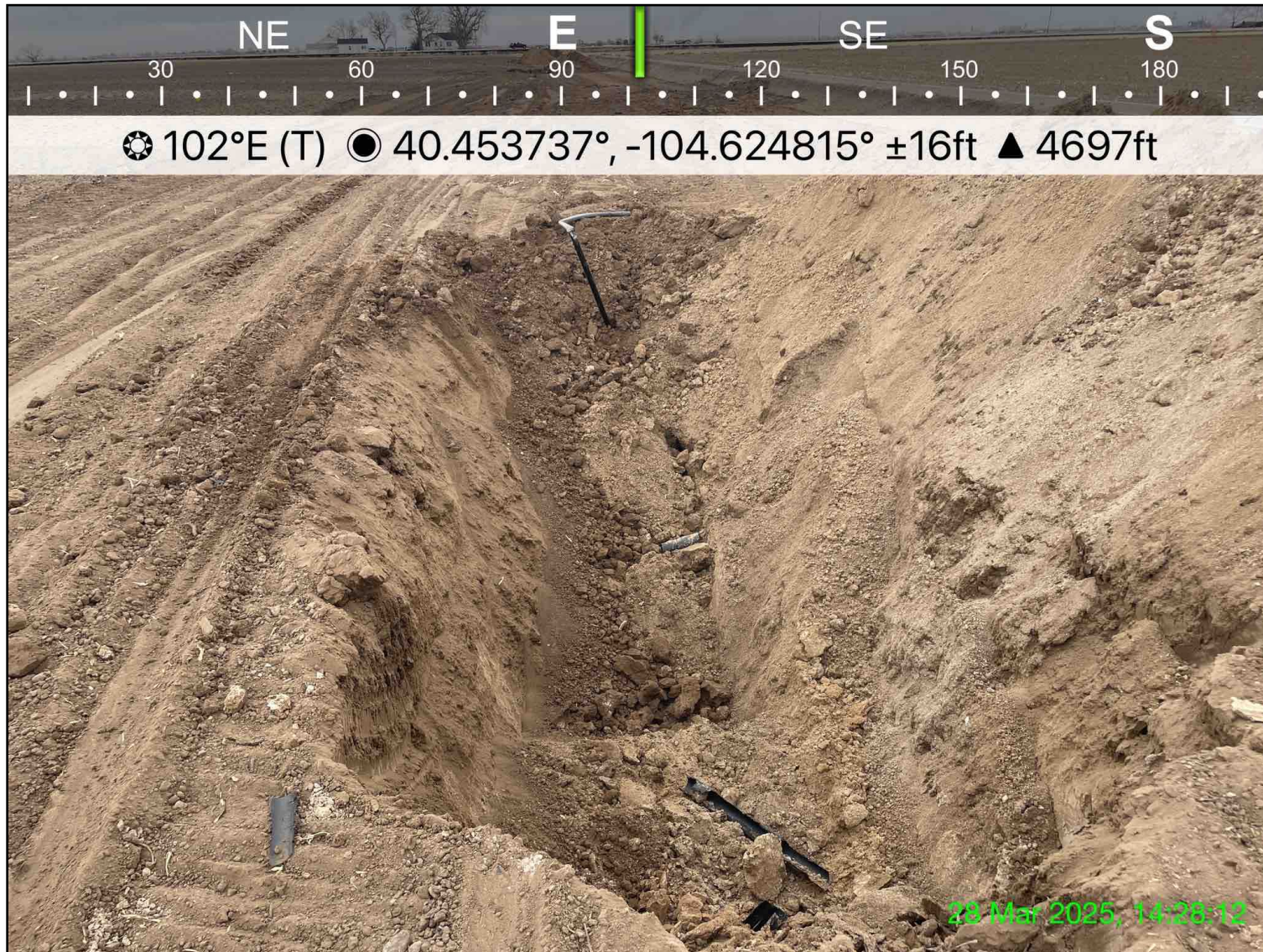


Photo 5: View of FL03-PH02 screening location, facing east

Attachment A - Photographic Log

LYSTER E26-23 FL REM #34506

Noble Energy Inc.

3/28/2025



Photo 6: View of FL03-PH03 screening location, facing east



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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
<i>Site Name & COGCC Facility Number:</i> LYSTER E26-23 & 123-31917		<i>Date:</i> 5/29/2025			<i>Remediation Project #:</i> 34506			
<i>Associated Wells:</i> LYSTER E26-23		<i>Age of Site:</i> 11/14/2010 - 3/30/2020			<i>Number of Photos Attached:</i> 6			
<i>Starting point: (GPS coordinates and descriptions)</i> Point A: 40.453616, -104.623596								
<i>End point: (GPS coordinates and descriptions)</i> Point B: 40.450249, -104.622992								
<i>USCS Soil Type: Coarse and fine sands</i>					<i>Estimated Depth to Groundwater: Unknown</i>			
<i>Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)</i> None observed								
<i>Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)</i> None observed								
Flowlines								
<i>Flowline type</i>	Multiphase							
<i>Depth</i>	4'							
<i>Age</i>	11/14/2010							
<i>Length</i>	1959'							
<i>Construction Material</i>	Steel							
<i>Were flowlines pulled?</i>	Partial							
<i>Visual Integrity of lines</i>	Good							
<i>Visual impacts if trenched</i>	None							
<i>PID Readings if trenched</i>	0 - 12.7							
<i>Sample taken? Location/Sample ID#</i>	Yes, see attached							
<i>Photo Number(s)</i>	See attached							
<i>Other observations regarding on location flowlines:</i> During field sampling operations, 622 feet of flowline was removed, with the easternmost section of 1,337 feet of flowline abandoned in place.								
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> 6					<i>Total number of samples collected:</i> 3			
<i>Highest PID Reading:</i> 12.7					<i>Total number of samples submitted to lab for analysis:</i> 3			
<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?</i> Yes No			
<i>Date Groundwater was encountered:</i>					<i>Commencement date of removal:</i>			
<i>Sheen on groundwater?</i> Yes No			<i>Volume of groundwater removed prior to sampling:</i>					
<i>Free product observed?</i> Yes No			<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>								