

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
404324598

Receive Date:

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Report taken by:

Site Investigation and Remediation Workplan (Supplemental Form)

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. However, this shall not preclude the Operator from taking immediate action to protect public health or safety, the environment, wildlife, or livestock.

This Form 27 describes site conditions as currently understood by the Operator; approval of this Form 27 by ECMC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27.

This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

|                                      |                                |                       |
|--------------------------------------|--------------------------------|-----------------------|
| Name of Operator: NOBLE ENERGY INC   | Operator No: 100322            | <b>Phone Numbers</b>  |
| Address: 1099 18TH STREET SUITE 1500 |                                | Phone: (970) 730-7281 |
| City: DENVER State: CO Zip: 80202    |                                | Mobile: ( )           |
| Contact Person: Dan Peterson         | Email: danpeterson@chevron.com |                       |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 34864 Initial Form 27 Document #: 403713009

PURPOSE INFORMATION

- Rule 913.c.(1): Pit or Cuttings Trench closure.
- Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- Rule 913.g: Changes of Operator.
- Rule 915.b: Request to leave elevated inorganics in situ.
- Other: \_\_\_\_\_

SITE INFORMATION

Yes Multiple Facilities

|  |                     |                        |  |
|--|---------------------|------------------------|--|
| Facility Type: LOCATION                            | Facility ID: 336608 | API #: _____           | County Name: WELD                          |
| Facility Name: REI 25-10                           | Latitude: 40.233680 | Longitude: -104.657390 |  |
| ** correct Lat/Long if needed: Latitude: 40.231578 |                     | Longitude: -104.658323 |  |
| QtrQtr: SWSW                                       | Sec: 10             | Twp: 3N                | Range: 65W Meridian: 6 Sensitive Area? Yes |
| Facility Type: SPILL OR RELEASE                    | Facility ID: 487560 | API #: _____           | County Name: WELD                          |
| Facility Name: REI Tank Battery 25-10              | Latitude: 40.231197 | Longitude: -104.658340 |  |
| ** correct Lat/Long if needed: Latitude: _____     |                     | Longitude: _____       |  |
| QtrQtr: NWNW                                       | Sec: 15             | Twp: 3N                | Range: 65W Meridian: 6 Sensitive Area? Yes |

## **SITE CONDITIONS**

General soil type - USCS Classifications SW \_\_\_\_\_

Most Sensitive Adjacent Land Use Rangeland \_\_\_\_\_

Is domestic water well within 1/4 mile? Yes \_\_\_\_\_

Is surface water within 1/4 mile? Yes \_\_\_\_\_

Is groundwater less than 20 feet below ground surface? No \_\_\_\_\_

### **Other Potential Receptors within 1/4 mile**

Mule Deer Severe Winter Range (1202.d) and Bald Eagle Roost Site (309.e.1)  
Forested/Shrub Wetland 0.07mi E (Milton Reservoir), Lake/Pond 0.10mi E (Milton Reservoir), Emergent Wetland 0.8mi W, Holding Pond 0.17mi W,  
0.04/0.06mi E, 0.16mi SE  
No other potential receptors are located within ¼ mile of the Site.  
Above distances are approximations.

# SITE INVESTIGATION PLAN

## TYPE OF WASTE:

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste      | <input type="checkbox"/> Other E&P Waste             | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids             | _____                                  |
| <input checked="" type="checkbox"/> Oil            | <input type="checkbox"/> Tank Bottoms                |  |
| <input checked="" type="checkbox"/> Condensate     | <input type="checkbox"/> Pigging Waste               |  |
| <input type="checkbox"/> Drilling Fluids           | <input type="checkbox"/> Rig Wash                    |  |
| <input type="checkbox"/> Drill Cuttings            | <input type="checkbox"/> Spent Filters               |  |
|  | <input type="checkbox"/> Pit Bottoms                 |  |
|  | <input type="checkbox"/> Other (as described by EPA) | _____                                  |

## DESCRIPTION OF IMPACT

| Impacted?    | Impacted Media | Extent of Impact | How Determined              |
|--------------|----------------|------------------|-----------------------------|
| Yes          | GROUNDWATER    | Undetermined     | Lab analysis if encountered |
| UNDETERMINED | SOILS          | Undetermined     | Lab analysis                |

## INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

A site investigation will be conducted pursuant to ECMC Rule 911 at the REI FED BEEBE DRAW OVIATT T3N-R65W-S10 L01 Facility and Tank Battery location.

## PROPOSED SAMPLING PLAN

### Proposed Soil Sampling

Will soil samples be collected as part of this investigation? ( Number, type (grab/composite), analyses, and locations of samples ):

Grab confirmation soil samples were collected from the produced water vessel(s) excavation, beneath the ground oil tank(s), at the risers for the flowline (s) and dumpline(s) of any separator(s). In addition, the on-site dump lines located between the separator and tank battery were removed by pulling from either end. Soil samples were analyzed by a certified laboratory for the full extent of Table 915-1, including but not limited to: TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons) organic compounds in soil per ECMC Table 915-1, and EC, SAR, pH, metals, and boron. All samples collected were analyzed by a certified laboratory using approved ECMC laboratory analysis methods.

### Proposed Groundwater Sampling

Will groundwater samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

Groundwater was encountered during the site investigation and a grab groundwater sample was collected and analyzed for all organic compounds per ECMC Table 915-1; this sample analysis includes, but is not limited to BTEX, naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB by EPA Method 8260.

### Proposed Surface Water Sampling

Will surface water samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

## Additional Investigative

### Actions

Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

Visual inspection at the tank battery area occurred during abandonment activities. Field personnel field screened all disturbed areas using visual and olfactory senses to determine if laboratory confirmation sampling was required. The ECMC Tank Battery and Produced Water Vessel Closure Checklists were utilized and filled out during the abandonment process.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 10

-- Highest concentration of TPH (mg/kg) 61.3

Number of soil samples exceeding 915-1 10

-- Highest concentration of SAR 5.78

Was the areal and vertical extent of soil contamination delineated? No

BTEX > 915-1 No

Approximate areal extent (square feet) 1000

Vertical Extent > 915-1 (in feet) 20

**Groundwater**

Number of groundwater samples collected 5

ND Highest concentration of Benzene (µg/l)           

Was extent of groundwater contaminated delineated? Yes

ND Highest concentration of Toluene (µg/l)           

Depth to groundwater (below ground surface, in feet) 13

ND Highest concentration of Ethylbenzene (µg/l)           

Number of groundwater monitoring wells installed 0

ND Highest concentration of Xylene (µg/l)           

Number of groundwater samples exceeding 915-1 1

NA Highest concentration of Methane (mg/l)           

**Surface Water**

0 Number of surface water samples collected

           Number of surface water samples exceeding 915-1

If surface water is impacted, other agency notification may be required.

**OTHER INVESTIGATION INFORMATION**

Were impacts to adjacent property or offsite impacts identified?

Were background samples collected as part of this site investigation?

Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards)           

Volume of liquid waste (barrels)           

Is further site investigation required?

A monitoring well will be installed upgradient of the release area, north of MW-2, to characterize native groundwater conditions. Three additional soil borings will be advanced north, south, and west of MW-5 to delineate the magnitude and extent of soil impacts exceeding the Table 915-1 soil standards within the vadose zone and confirm communication between groundwater and soil impacts has not occurred.

Five background samples will be collected from an area not impacted by oil and gas development at similar depths (1', 3', 5', 8', 11', and 20') and lithologies as confirmation samples collected at the location and analyzed for ECMC Table 915-1 metals and soil suitability for reclamation standards (pH, EC, SAR, and Boron). The samples will be used to characterize native soil and potentially attribute elevated metals and inorganics concentrations to native soil conditions.

Sample locations are displayed on Figure 5 of the attached.

**REMEDIAL ACTION PLAN**

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? No

**SOURCE REMOVAL SUMMARY**

Describe how source is to be removed.

**REMEDIATION SUMMARY**

Describe how remediation of existing impacts to soil and groundwater is to be accomplished (i.e. summarize remedial action plan). Provide a brief narrative description including: technical justification, schedule for implementation, estimated time to attain NFA status, plus plans and specifications for the selected remedial action technology.

Groundwater impacts were observed at the former REI 25-10 tank battery produced water vault (PWV) location during site decommissioning activities conducted on July 3, 2024. Five monitoring wells were installed on May 21, 2025 to delineate the magnitude and extent of dissolved-phase groundwater (GW) impacts at the former PWV location. A total of five soil borings were advanced utilizing a Geoprobe rig and completed as flush-mounted, one-inch diameter monitoring wells. These monitoring wells are sampled quarterly.

Soil impacts were encountered in the vadose zone at 11 feet below ground surface in the MW-5 soil boring. The MW-5 11 Ft soil sample exceeded the ECMC Table 915-1 Protection of GW Soil Screening Levels (PGSSLs) for 1,2,4 trimethylbenzene (TMB) with a concentration of 0.723 mg/kg. Laboratory data collected in May 2025 indicates all organic GW constituents, including 1,2,4 TMB, comply with ECMC Table 915-1 groundwater standards, so a pathway for soil impacts to contact GW is considered incomplete. Based on the ECMC's 3/2/2021 Rule 915.a. – Soil Concentrations – Determination of Pathway to Groundwater guidance document "groundwater protection SSLs are secondary to actual measured concentrations of contaminants in groundwater. Groundwater sampling can be used to eliminate the groundwater pathway." The Operator proposes use quarterly groundwater sampling and additional soil delineation to eliminate a pathway for impacts to contact groundwater. The May 2025 GW sampling event represents the first quarter of ECMC compliant groundwater groundwater remains unimpacted the Operator will request usage of the Residential Soil Screening Levels as closure criteria when requesting NFA after four consecutive Table 915-1 compliant quarters of GW monitoring.

**Soil Remediation Summary**

|   |  |
|---|--|
| <input type="checkbox"/> In Situ                    | <input type="checkbox"/> Ex Situ                                     |
| _____ Bioremediation ( or enhanced bioremediation ) | _____ Excavate and offsite disposal                                  |
| _____ Chemical oxidation                            | _____ If Yes: Estimated Volume (Cubic Yards) _____                   |
| _____ Air sparge / Soil vapor extraction            | _____ Name of Licensed Disposal Facility or ECMC Facility ID # _____ |
| _____ Natural Attenuation                           | _____ Excavate and onsite remediation                                |
| _____ Other _____                                   | _____ Land Treatment   |
|   | _____ Bioremediation (or enhanced bioremediation)                    |
|   | _____ Chemical oxidation   |
|   | _____ Other _____  |

**Groundwater Remediation Summary**

No \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

No \_\_\_\_\_ Chemical oxidation

No \_\_\_\_\_ Air sparge / Soil vapor extraction

Yes \_\_\_\_\_ Natural Attenuation

No \_\_\_\_\_ Other \_\_\_\_\_

**GROUNDWATER MONITORING**

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

Groundwater will be sampled quarterly until analytical results are reported with concentrations Table 915-1 analytes below regulatory limits for four consecutive quarters. Five monitoring wells (MW-1 through MW-5) were installed in May 2025 to monitor (natural) attenuation of groundwater impacts identified at the former REI 25-10 tank battery produced water vault (PWV) location during site decommissioning activities conducted on July 3, 2024. Groundwater monitoring wells were sampled and submitted to a laboratory for analysis of Table 915-1 groundwater constituents: Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), naphthalene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Chloride ion, Sulfate ion and Total Dissolved Solids.

A monitoring well will be installed upgradient of the release area, north of MW-2, to characterize native groundwater conditions. Sample locations are displayed on Figure 5 of the attached.

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

### Approved Reporting Schedule:

Quarterly     Semi-Annually     Annually     Other

### Request Alternative Reporting Schedule:

Semi-Annually     Annually     Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

Report Type:     Groundwater Monitoring     Land Treatment Progress Report     O&M Report

Other Proposed Additional Soil Sampling

## Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

Noble intends to directly address the costs of remediation at the locations as part of our asset retirement obligation process and operations. Noble has general liability insurance (policies MWZZ316714 and MWZX316724) and financial assurance in compliance with ECMC rules. Records are available on the ECMC's website. The cost for remediation is an estimate only, costs may change upwards or downward based on site-specific information. Noble makes no representation or guarantees as to the accuracy of the estimate.

Operator anticipates the remaining cost for this project to be: \$ 50000

## WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Volume of E&P Waste (solid) in cubic yards

E&P waste (solid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

# REMEDIATION COMPLETION REPORT

## REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No

If YES:

Compliant with Rule 913.h.(1).

Compliant with Rule 913.h.(2).

Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards? No

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? Yes

Is additional groundwater monitoring to be conducted? \_\_\_\_\_

Operator shall comply with the ECMC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

## RECLAMATION PLAN

### RECLAMATION PLANNING

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing.

Reclamation will be in accordance with ECMC 1000 Series Rules.

Is the described reclamation complete? Yes

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

Interim  Final

Did the Surface Owner provide the seed mix? \_\_\_\_\_

If YES, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

Did the local soil conservation district provide the seed mix? \_\_\_\_\_

### SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. 10/23/2027

Proposed date of completion of Reclamation. 10/23/2029

## IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

### PRIOR DATES

Date of Surface Owner notification/consultation, if required. 12/07/2023

Actual Spill or Release date, or date of discovery. 07/30/2024

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/03/2024

Proposed site investigation commencement. 04/15/2024

Proposed completion of site investigation. 01/03/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/03/2025

Proposed date of completion of Remediation. 04/03/2027

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

\_\_\_\_\_

**OPERATOR COMMENT**

This Form 27 is being submitted to include monitoring well installation boring logs, groundwater and soil sample results for the REI 25-10, Remediation # 34864 location.

Monitored natural attenuation (MNA) will be implemented at the site to address dissolved-phase groundwater impacts encountered during the REI 25-10 facility decommissioning activities. A monitoring well will be installed upgradient of the release area, north of MW-2, to characterize native groundwater conditions. Three additional soil borings will be advanced north, south, and west of MW-5 to delineate the magnitude and extent of soil impacts exceeding the Table 915-1 soil standards within the unsaturated zone and confirm a pathway for communication with soil contaminant of concern (COC) 1,2,4 TMB is not complete. Five background samples will be collected from an area not impacted by oil and gas development at similar depths (1', 3', 5', 8', 11', and 20') and lithologies as confirmation samples collected at the location and analyzed for ECMC Table 915-1 metals and soil suitability for reclamation standards (pH, EC, SAR, and Boron). The samples will be used to characterize native soil and potentially attribute elevated metals and inorganics concentrations to native soil conditions. Sample locations are displayed on Figure 5 of the attached.

Laboratory data collected in May 2025 indicates all organic GW constituents, including COC 1,2,4 TMB, comply with ECMC Table 915-1 groundwater standards, so a pathway for soil impacts to contact GW is considered incomplete. Further, soil and groundwater collected from all five sample locations were compliant with the Table 915-1 standard for previously identified COC benzene encountered during the initial decommissioning event.

Based on the ECMC's 3/2/2021 Rule 915.a. – Soil Concentrations – Determination of Pathway to Groundwater guidance document "groundwater protection SSLs are secondary to actual measured concentrations of contaminants in groundwater. Groundwater sampling can be used to eliminate the groundwater pathway." The Operator proposes use quarterly groundwater sampling and additional soil delineation to eliminate a pathway for impacts to contact groundwater. The May 2025 GW sampling event represents the first quarter of ECMC compliant groundwater groundwater remains unimpacted the Operator will request usage of the Residential Soil Screening Levels as closure criteria when requesting NFA after four consecutive Table 915-1 compliant quarters of GW monitoring.

A no further action designation will be requested from the ECMC when remediation criteria have been achieved, and following the observation of four consecutive quarters of groundwater compliant with the applicable ECMC Table 915-1 standards under static conditions at the site. The Q2 2025 sampling event marks the first quarter of ECMC-compliant groundwater at the site for organic compounds.

Supplemental Form 27s will be prepared and submitted on a quarterly schedule to provide updates and progress of the remediation until closure criteria has been achieved.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: Ethan Black

Title: Consultant

Submit Date: \_\_\_\_\_

Email: ethanb@fremontenv.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with ECMC Rules and applicable orders and is hereby approved.

ECMC Approved: \_\_\_\_\_

Date: \_\_\_\_\_

Remediation Project Number: 34864

| <u>COA Type</u> | <u>Description</u> |
|-----------------|--------------------|
| 0 COA           |                    |

**ATTACHMENT LIST**

Upon approval, the approved Form 27 and all listed attachments will be indexed to the Remediation Project file. Only the approved Form 27 will also be indexed to the related Facilities.

| <u>Att Doc Num</u> | <u>Name</u>                  |
|--------------------|------------------------------|
| 404324615          | LABORATORY ANALYTICAL REPORT |
| 404324620          | LABORATORY ANALYTICAL REPORT |
| 404326509          | MONITORING REPORT            |

Total Attach: 3 Files

**General Comments**

| <u>User Group</u> | <u>Comment</u> | <u>Comment Date</u> |
|-------------------|----------------|---------------------|
|                   |                | Stamp Upon Approval |

Total: 0 comment(s)