

State of Colorado  
Energy & Carbon Management Commission

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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 ECOM 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: rbueuf27@chevron.com |                       |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 25984 Initial Form 27 Document #: 403210529

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

No Multiple Facilities

|                                      |  |                        |   |
|--------------------------------------|--|------------------------|---|
| Facility Type: LOCATION              | Facility ID: 319550                                | API #: _____           | County Name: WELD                         |
| Facility Name: BOULTER-64N65W 11NWSW | Latitude: 40.325300                                | Longitude: -104.637241 |   |
|                                      | ** correct Lat/Long if needed: Latitude: 40.325464 | Longitude: -104.635428 |   |
| QtrQtr: NWSW                         | Sec: 11  | Twp: 4N                | Range: 65W Meridian: 6 Sensitive Area? No |

SITE CONDITIONS

General soil type - USCS Classifications SW Most Sensitive Adjacent Land Use crop  
Is domestic water well within 1/4 mile? Yes Is surface water within 1/4 mile? No  
Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

NA

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- X E&P Waste
Other E&P Waste
Non-E&P Waste
Produced Water
Workover Fluids
Oil
Tank Bottoms
Condensate
Pigging Waste
Drilling Fluids
Rig Wash
Drill Cuttings
Spent Filters
Pit Bottoms
Other (as described by EPA)

DESCRIPTION OF IMPACT

Table with 4 columns: Impacted?, Impacted Media, Extent of Impact, How Determined. Rows include GROUNDWATER and SOILS.

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 was conducted pursuant to COGCC Rule 911 at the BOULTER T4N-R65W-S11 L01 Tank Battery location.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

X 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), and at the separator(s). Soil samples were analyzed by a certified laboratory for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons) organic compounds in soil per ECMC Table 915-1, and EC, SAR, pH, and boron. All samples collected were analyzed by a certified laboratory using approved ECMC laboratory analysis methods.

Proposed Groundwater Sampling

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

Groundwater was encountered during the site investigation.

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

Number of soil samples collected 23  
Number of soil samples exceeding 915-1 22  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 12000

### NA / ND

-- Highest concentration of TPH (mg/kg) 3000  
-- Highest concentration of SAR 7.96  
BTEX > 915-1 Yes  
Vertical Extent > 915-1 (in feet) 7

### Groundwater

Number of groundwater samples collected 3  
Was extent of groundwater contaminated delineated? No  
Depth to groundwater (below ground surface, in feet) 5  
Number of groundwater monitoring wells installed 1  
Number of groundwater samples exceeding 915-1 3

-- Highest concentration of Benzene (µg/l) 2200  
-- Highest concentration of Toluene (µg/l) 5000  
-- Highest concentration of Ethylbenzene (µg/l) 1100  
-- Highest concentration of Xylene (µg/l) 15000  
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?

Six background samples was collected in native soil, off-pad, adjacent to the Boulter 64N65W facility. Samples were collected from similar depths and lithologies as confirmation samples and analyzed for ECMC Table 915-1 Soil Suitability for Reclamation constituents and metals.

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?

## 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.

Impacted soil will be removed from the release area by excavation. The impacted soil will be disposed of at an approved landfill as non-hazardous waste in accordance with Rules 905 and 906. Copies of the waste manifests will be available upon request.

### 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.

The source will be excavated and confirmation soil samples will be collected and analyzed for the full Table 915 suite. The proposed site investigation extent is displayed on Figure 5 of the attached.

If groundwater is encountered during the excavation of impacted soil, a groundwater sample will be collected for Table 915 organic constituents in groundwater (BTEX, 1,2,4 Trimethylbenzene, 1,3,5 Trimethylbenzene, and Naphthalene). If residual soil and/or groundwater impacts are observed following the excavation completion remedial actions will be evaluated and may include but are not limited to installation of groundwater monitoring wells, active remediation (air sparge or soil vapor extraction), in situ chemical oxidation, etc. to address the impacts.

Estimated time to achieve NFA status ranges from 90 days following completion of excavation if groundwater is observed to be unimpacted to a minimum of year following excavation completion is groundwater is impacted.

## Soil Remediation Summary

In Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Air sparge / Soil vapor extraction  
\_\_\_\_\_ Natural Attenuation  
\_\_\_\_\_ Other \_\_\_\_\_

Ex Situ

\_\_\_\_\_ Excavate and offsite disposal  
\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_  
\_\_\_\_\_ Name of Licensed Disposal Facility or ECMC Facility ID # \_\_\_\_\_  
\_\_\_\_\_ Excavate and onsite remediation  
\_\_\_\_\_ Land Treatment  
\_\_\_\_\_ Bioremediation (or enhanced bioremediation)  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Other \_\_\_\_\_

## Groundwater Remediation Summary

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Air sparge / Soil vapor extraction  
\_\_\_\_\_ Natural Attenuation  
\_\_\_\_\_ 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.

Following excavation a minimum of five groundwater monitoring wells will be installed at the Boulter 64N65W tank battery location to define the magnitude and extent of groundwater impacts. The monitoring wells will be sampled quarterly and analyzed for ECMC Table 915-1 organic constituents benzene, toluene, ethyl-benzene, xylenes (BTEX), naphthalene, 1,2,4-and-1,3,5 trimethylbenzene by EPA Method 8260B and ECMC Table 915-1 inorganic constituents chloride and sulfate anions by EPA 300.0 and total dissolved solids (TDS) by SM2540C.

# 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   

## 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 (policy MWZZ 316714) 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: \$

## WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation?

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?

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?

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? No

Is additional groundwater monitoring to be conducted? Yes

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 COGCC 1000 Series Rules.

Is the described reclamation complete? No

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. 04/01/2026

Proposed date of completion of Reclamation. 04/01/2029

## 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. 10/10/2022

Actual Spill or Release date, or date of discovery. 02/03/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 01/25/2023

Proposed site investigation commencement. 11/26/2022

Proposed completion of site investigation. 12/01/2023

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 01/25/2024

Proposed date of completion of Remediation. 12/25/2024

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:

Pending location, landowner approval, and crew availability, the operator will complete the excavation as outlined in this proposed Remedial Action workplan. 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.

**OPERATOR COMMENT**

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: 03/27/2024

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: 25984

| <b><u>COA Type</u></b> | <b><u>Description</u></b> |
|------------------------|---------------------------|
| 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.

| <b><u>Att Doc Num</u></b> | <b><u>Name</u></b>        |
|---------------------------|---------------------------|
| 403859449                 | SITE INVESTIGATION REPORT |

Total Attach: 1 Files

**General Comments**

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

Total: 0 comment(s)