

State of Colorado  
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
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Report taken by:

Krystal Heibel

## 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         | Phone Numbers         |
| Address: 1099 18TH STREET SUITE 1500 |                             | Phone: (970) 730-7281 |
| City: DENVER                         | State: CO                   | Zip: 80202            |
| Contact Person: Dan Peterson         | Email: rbueuf27@chevron.com | Mobile: ( )           |

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 26241 Initial Form 27 Document #: 403246092

## 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: SPILL OR RELEASE                | Facility ID: 481958 | API #: _____           | County Name: WELD |
| Facility Name: Wells Ranch AE20 Facility       | Latitude: 40.473422 | Longitude: -104.354595 |                   |
| ** correct Lat/Long if needed: Latitude: _____ |                     | Longitude: _____       |                   |
| QtrQtr: SWNW                                   | Sec: 20             | Twp: 6N                | Range: 62W        |
| Meridian: 6                                    | Sensitive Area?     | No                     |                   |

## 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? No

Is groundwater less than 20 feet below ground surface? No

NA

## SITE INVESTIGATION PLAN

**TYPE OF WASTE:**☒ 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**

| Impacted? | Impacted Media | Extent of Impact | How Determined |
|-----------|----------------|------------------|----------------|
| Yes       | SOILS          | 68' x 33' x 7'   | Lab analysis   |

**INITIAL ACTION SUMMARY**

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

A leak was discovered during a routine site inspection, valves were immediately shut in and the line was isolated to mitigate any potential release. Clean up efforts commenced immediately, and an effort was then made to locate the pipe and evaluate a below ground leak.

**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 soil samples were collected at the base, sidewalls, and areas of observed impacts within the excavations. Soil samples were analyzed by a certified laboratory for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons) organic compounds in soil per COGCC Table 915-1, and EC, SAR, pH, and boron. All samples collected were analyzed by a certified laboratory using approved COGCC laboratory analysis methods.

**Proposed Groundwater Sampling**☐ Will groundwater samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):**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 ):

Background samples were collected from five (5) separate locations for comparison to excavation confirmation soil samples. Background sampling locations were sufficiently away from the impacted area to reflect conditions not impacted by oil and gas activity, and were obtained from similar depths and soil horizons as those that the confirmation soil samples.

## SITE INVESTIGATION REPORT

**SAMPLE SUMMARY**

Soil

NA / ND

Number of soil samples collected 28

Number of soil samples exceeding 915-1 2

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 2244

-- Highest concentration of TPH (mg/kg) 2279

-- Highest concentration of SAR 48.8

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 7

#### Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet)

Number of groundwater monitoring wells installed

Number of groundwater samples exceeding 915-1

Highest concentration of Benzene (µg/l)

Highest concentration of Toluene (µg/l)

Highest concentration of Ethylbenzene (µg/l)

Highest concentration of Xylene (µg/l)

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?

Additional background samples will be collected for comparative analysis of inorganic constituents.

☐ 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.

Source was removed via remedial excavation guided by field screening using AVO and PID, and by laboratory analysis of confirmation samples.

#### 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 impacted area was divided into three excavations of varying depths and dimensions. Soil samples collected from the excavations sidewalls and floors were collected as grab samples. Grab samples were analyzed by a certified laboratory for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons) organic compounds in soil per COGCC Table 915-1, and EC, SAR, pH, and boron. A total of approximately 415 cubic yards of impacted soil was removed from the three excavations.

Addressing Elevated Arsenic Concentrations in Soil:  
Refer to Doc. # 403494265

Addressing Elevated Inorganics in Soil:  
Since this is an operating facility, remediation of pH, SAR and EC impacts to achieve the Soil Suitability for Reclamation standards is premature. Noble will reclaim the site to the relevant standards in place for revegetation during future site decommissioning activities. Further, the observed SAR and EC impacts are thought to be deeper than the anticipated root zone for rangeland vegetative species. Therefore, Noble proposes to allow the soil impacts that currently exceed the Soil Suitability for Reclamation standards to remain in place for now.

Operator will define the vertical and lateral extent of impacts and provide a detailed reclamation plan that includes, but is not limited to, soil analysis from adjacent undisturbed lands, revegetation techniques, site stabilization, and details of seeded species.

NFA is estimated to be attained following submittal and review of a supplemental Form 27 which includes additional soil delineation data and a detailed reclamation plan.

## Soil Remediation Summary

☐ In Situ

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

☒ Ex Situ

Yes \_\_\_\_\_ Excavate and offsite disposal  
If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 415  
Name of Licensed Disposal Facility or ECMC Facility ID # \_\_\_\_\_  
No \_\_\_\_\_ 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.

NA

## 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 Supplemental Form 27

### 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.

Operator anticipates the remaining cost for this project to be: \$ 10000

### WASTE DISPOSAL INFORMATION

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

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

E&P waste was excavated and disposed of off site at Buffalo Ridge Landfill.

Volume of E&P Waste (solid) in cubic yards 415

E&P waste (solid) description Soil

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Buffalo Ridge Landfill

Volume of E&P Waste (liquid) in barrels 0

E&P waste (liquid) description NA

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 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. \_\_\_\_\_

Proposed date of completion of Reclamation. \_\_\_\_\_

## 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. 04/07/2022

Actual Spill or Release date, or date of discovery. 04/07/2022

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/07/2022

Proposed site investigation commencement. 12/12/2022

Proposed completion of site investigation. 12/31/2024

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/07/2022

Proposed date of completion of Remediation. 04/21/2022

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:

NFA request denied. Scheduling additional inorganic investigation and delineation.

**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: 02/23/2024

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: Krystal Heibel

Date: 07/08/2024

Remediation Project Number: 26241

**COA Type****Description**

|        |   |
|--------|---|
|        | <p>Per Doc# 403494265, Soil confirmation sample data indicate that pH, EC, and SAR at the site exceeds the Table 915-1 soil suitability levels for reclamation. Therefore the remediation project cannot be closed at this time. ECMC removed the closure request. If the Operator proposes to leave material with elevated levels of pH, EC, and SAR in situ, the Operator shall define the vertical and lateral extent of impacts and provide a detailed Reclamation plan that includes, but is not limited to, soil analysis from adjacent undisturbed lands, revegetation techniques, site stabilization, and details of seeded species. Operator will submit the Reclamation plan pursuant to Rule 915.b. on a Form 27 Supplemental Report for Director review.</p> <p>"Further, the observed SAR and EC impacts are thought to be deeper than the anticipated root zone for rangeland vegetative species. Therefore, Noble proposes to allow the soil impacts that currently exceed the Soil Suitability for Reclamation standards to remain in place for now.</p> <p>Operator will define the vertical and lateral extent of impacts and provide a detailed reclamation plan that includes, but is not limited to, soil analysis from adjacent undisturbed lands, revegetation techniques, site stabilization, and details of seeded species."</p> |
|        | <p>Operator shall collect confirmation soil samples as described in the Rule 915.e.(2) Guidance Document. Operator will analyze soil samples for TPH (C6-C36), Table 915-1 Organic Compounds in Soil, Table 915-1 metals, and Table 915-1 Soil Suitability for Reclamation (Electrical conductivity, Sodium adsorption ratio, and pH by saturated paste method, boron (hot water soluble)).</p>   |
| 2 COAs |   |

**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.

**Att Doc Num****Name**

|           |                                |
|-----------|--------------------------------|
| 403697244 | FORM 27-SUPPLEMENTAL-SUBMITTED |
| 403807354 | SOIL SAMPLE LOCATION MAP       |

Total Attach: 2 Files

**General Comments****User Group****Comment****Comment Date**

|               |   |            |
|---------------|---|------------|
| Environmental | Per Doc# 403494265, "Although arsenic was present on the periphery of the excavation, analyses of the produced water and oil indicates that those arsenic concentrations are due to native conditions. SAR, EC and pH were also elevated in the excavation; Noble proposes that those constituents be left in place until the facility is decommissioned and will be addressed by a Reclamation Plan at that time." | 07/08/2024 |
|---------------|---|------------|

|               |  |            |
|---------------|--|------------|
| Environmental | Per Doc# 403494265, ECMC approves Operator's request for use of Residential SSLs based on the depth to groundwater and the local lithology suggesting a pathway to groundwater at this location is not likely. | 07/08/2024 |
|---------------|--|------------|

Total: 2 comment(s)