

State of Colorado  
Energy & Carbon Management Commission

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Receive Date:

03/26/2024

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	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 #: 25628 Initial Form 27 Document #: 403207715

## 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: 327139	API #: _____	County Name: WELD
Facility Name: KILDOW PM C-64N64W 31NWNE	Latitude: 40.273940	Longitude: -104.591040	
** correct Lat/Long if needed: Latitude: 40.275880		Longitude: -104.591350	
QtrQtr: NWNE	Sec: 31	Twp: 4N	Range: 64W Meridian: 6 Sensitive Area? No

Facility Type: SPILL OR RELEASE	Facility ID: 484174	API #: _____	County Name: WELD
Facility Name: Kildow PMC 31-2 Tank Battery	Latitude: 40.275875	Longitude: -104.591218	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWNE	Sec: 31	Twp: 4N	Range: 64W 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? No \_\_\_\_\_

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

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

Farm Structures 0.12/0.12/0.13 WSW, 0.19 SW, 0.17/0.19 SE  
Residential 0.14 WSW, 0.18 SW, 0.15 ESE

## 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
UNDETERMINED	GROUNDWATER	NA	Laboratory Analysis if encountered
Yes	SOILS	Refer to Tables and Figures	Laboratory Analysis and Field Screening

### 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 ECMC Rule 911 at the KILDOW PM T4N-R64W-S31 L01 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 excavation, beneath the above-ground oil tanks, and at the separators. 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, EC, SAR, pH, and boron. Additionally, one soil sample (FS01@7') was analyzed for metals in soil per ECMC Table 915-1. All samples collected were analyzed by a certified laboratory using ECMC approved laboratory analysis methods.

#### Proposed Groundwater Sampling

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

If groundwater is encountered during site investigation activities, groundwater samples will be collected and analyzed for all organic and inorganic compounds in groundwater per ECMC Table 915-1.

#### 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. A detailed summary of decommissioning activities, including field notes, site photos, figures, and laboratory analytical results, was attached to a previous Form 27 (Document No. 403455437).

## SITE INVESTIGATION REPORT

### SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 44

-- Highest concentration of TPH (mg/kg) 324

Number of soil samples exceeding 915-1 24 -- Highest concentration of SAR 9.99  
Was the areal and vertical extent of soil contamination delineated? No BTEX > 915-1 No  
Approximate areal extent (square feet) 2500 Vertical Extent > 915-1 (in feet) 13

#### Groundwater

Number of groundwater samples collected 0 Highest concentration of Benzene (µg/l)  
Was extent of groundwater contaminated delineated? No Highest concentration of Toluene (µg/l)  
Depth to groundwater (below ground surface, in feet) Highest concentration of Ethylbenzene (µg/l)  
Number of groundwater monitoring wells installed Highest concentration of Xylene (µg/l)  
Number of groundwater samples exceeding 915-1 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?

A total of twelve (12) background soil samples were collected from five discrete locations (BG01 - BH05) near the former facility and analyzed for SAR, pH, boron, arsenic, barium, cadmium, lead, and selenium. Background soil samples were collected from depths ranging between 2.5 to 12 feet below ground surface (ft bgs). SAR, pH, arsenic, barium, cadmium, lead, and selenium were observed in the background soil samples above ECMC Table 915-1 standards. Additional background sampling is proposed to determine if SAR, pH, boron, and metals (arsenic, barium, cadmium, lead, and selenium) are attributed to native soil conditions at the site. The proposed background soil sample locations are shown on the attached Proposed SSI Soil Boring Assessment Map.

☐ 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 supplemental site investigation (SSI) will be completed to vertically and horizontally delineate the 1,2,4-TMB, 1,3,5-TMB, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene exceedances observed at sample locations BH07@9-10', BH07@11-12', BH08@7-8', BH08@11.5-12.5', and BH09@7-8' during previous site assessment activities conducted in April and September 2023. A proposed SSI map is attached to this Form 27. Based on the 1,2,4-TMB, 1,3,5-TMB, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, pH, SAR, boron, arsenic, barium, cadmium, lead, and selenium exceedances identified during decommissioning and site assessment activities, Noble proposes to limit future soil sampling to organic compounds in soil per ECMC Table 915-1, TPH, pH, SAR, boron, arsenic, barium, cadmium, lead, and selenium only. Concurrently with the SSI, additional background samples will be collected to determine if pH, SAR, boron, arsenic, barium, cadmium, lead, and selenium are attributed to native soil conditions at the site. The SSI will be completed in accordance with the proposed implementation schedule, and the results of the SSI will be submitted on a subsequent Form 27.

### 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.

A Site Assessment was conducted on 4/20/2023 and 9/26/2023 to delineate impacted media. Soil boring BH01 was advanced at the same location as the waste characterization sample FS01@7' to vertically delineate impacts at that location. Soil borings BH02 - BH10 were advanced surrounding BH01 to vertically and laterally delineate impacts identified at FS01@7'. Soil samples were collected and analyzed for Organic compounds in soil per ECMC Table 915-1, TPH, metals in soil per ECMC Table 915-1, EC, SAR, pH, and boron. Groundwater was not encountered during this assessment.

#### 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.

A supplemental site investigation (SSI) will be completed to vertically and horizontally delineate the 1,2,4-TMB, 1,3,5-TMB, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene exceedances observed at sample locations BH07@9-10', BH07@11-12', BH08@7-8', BH08@11.5-12.5', and BH09@7-8' during previous site assessment activities conducted in April and September 2023, in accordance with the attached proposed site investigation map, and proposed sampling plan outlined in the Site Investigation Report section of this Form 27.

## **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.

## 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 Site Assessment Report & Supplemental Site Investigation Proposal

### 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: \$ 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. 03/28/2023

Proposed date of completion of Reclamation. 07/22/2025

## 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. 09/29/2022

Actual Spill or Release date, or date of discovery. 04/05/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/28/2023

Proposed site investigation commencement. 04/20/2023

Proposed completion of site investigation. 01/22/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/20/2023

Proposed date of completion of Remediation. 07/22/2025

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:

The implementation schedule has been changed due to the necessity for additional supplemental site investigation activities adjacent to the tank battery. The proposed site investigation will be completed following the approval of this form, landowner negotiations, and crew availability.

**OPERATOR COMMENT**

This Form 27 is being re-submitted to provide the results of the supplemental site assessment activities completed at the former KILDOW PM T4N-R64W-S31 L01 Tank Battery location during September 2023. Based on these results, a supplemental site investigation (SSI) will be completed to vertically and horizontally delineate the 1,2,4-TMB, 1,3,5-TMB, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene exceedances observed at sample locations BH07@9-10', BH07@11-12', BH08@7-8', BH08@11.5-12.5', and BH09@7-8' during previous site assessment activities conducted in April and September 2023, in accordance with the attached proposed site investigation map, and proposed sampling plan outlined in the Site Investigation Report section of this Form 27. Based on the 1,2,4-TMB, 1,3,5-TMB, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, pH, SAR, boron, arsenic, barium, cadmium, lead, and selenium exceedances identified during decommissioning and site assessment activities, Noble proposes to limit future soil sampling to organic compounds in soil per ECMC Table 915-1, TPH, pH, SAR, boron, arsenic, barium, cadmium, lead, and selenium only. Concurrently with the SSI, additional background samples will be collected to determine if pH, SAR, boron, arsenic, barium, cadmium, lead, and selenium are attributed to native soil conditions at the site. The SSI will be completed in accordance with the proposed implementation schedule, and the results of the SSI will be submitted on a subsequent Form 27.

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

Signed: Allan Engelhardt

Title: Environmental Consultant

Submit Date: 03/26/2024

Email: chevroneform@tasman-geo.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: 25628

**COA Type****Description**

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.

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

403862028	SITE INVESTIGATION REPORT
403862029	SITE INVESTIGATION PLAN

Total Attach: 2 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)