

State of Colorado
Energy & Carbon Management Commission

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Document Number:
404370113

Receive Date:

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) 304-5000 |
| City: DENVER State: CO Zip: 80202 | | Mobile: () |
| Contact Person: Dan Peterson | Email: rbueuf27@chevron.com | |

PROJECT, PURPOSE & 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 SC

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:

- | | | |
|--|--|--|
| <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 |
|--------------|----------------|------------------------------|--|
| UNDETERMINED | GROUNDWATER | NA | Laboratory Analysis and Field Screening if encountered |
| Yes | SOILS | Refer to ECMC Doc #404282438 | 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.

On 03/28/2023, a site investigation was conducted pursuant to ECMC Rule 911 at the KILDOW PM T4N-R64W-S31 L01 Tank Battery location.

A grab soil sample was not collected at the field location southwest of the facility pad during initial decommissioning activities (GS01), as proposed in the sample location map attached to the IF27 (ECMC Document #403207715).

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 (SS01@2.5'-SS04@2.5', FS01@4.5' and FS01@7'), beneath the above-ground oil tank (AST01@0.5'), and at the risers for the flowline and dumpline at the separator (SEP01-FL@3' and SEP01-DL@3'). 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 15 -- Highest concentration of TPH (mg/kg) 1120
 Number of soil samples exceeding 915-1 10 -- Highest concentration of SAR 8.44
 Was the areal and vertical extent of soil contamination delineated? No BTEX > 915-1 Yes
 Approximate areal extent (square feet) 1000 Vertical Extent > 915-1 (in feet) 15

Groundwater

Number of groundwater samples collected 0 Highest concentration of Benzene (µg/l) _____
 Was extent of groundwater contaminated delineated? Yes 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?
 On 03/28/2023, three background soil samples were collected from one discrete location (BG01) adjacent to the tank battery and analyzed for pH, SAR, EC, and boron. Sample location BG01@7' was also submitted for metals in soil per ECMC Table 915-1. On 09/26/2023, ten background soil samples were collected from three discrete location (BG01-BG05) adjacent to the tank battery and analyzed for metals in soil per ECMC Table 915-1, pH, SAR, EC, and boron. Background soil samples were collected from depths ranging between 2.5 to 12 feet below ground surface (ft bgs). The maximum background concentrations for pH, EC, SAR, and boron were detected to be 8.97, 6.51 mmhos/cm, 5.21, 0.569 mg/kg, respectively. The maximum background concentrations with a 1.25x multiplier applied for arsenic, barium, cadmium, lead, and selenium were calculated to be 5.10 mg/kg, 246 mg/kg, 3.43 mg/kg, 49.1 mg/kg, and 1.41 mg/kg, respectively. All cadmium concentrations were below 1.25x the maximum background level.

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?
 Based on the analytical results of the December 2024 supplemental site investigation (SSI), additional site investigation activities will be completed to further horizontally delineate the organic and inorganic compound exceedances detected at sample locations BH07R@9-10', BH08R@9-10', BH08R@14-15', BH13@11-12', BH15@14-15' and BH16@9-10' and vertically delineate the organic exceedances detected at sample location BH08R during the April 2024 and December 2024 SSI. The proposed SSI will include re-collecting initial decommissioning and September 2023 SSI samples to assess for Table 915-1 compliance, which were not collected for metals in soil per ECMC Table 915-1 and/or SAR. A proposed SSI map is attached to this Form 27. During the SSI, soil samples will be collected and analyzed for full ECMC Table 915-1 constituents. Concurrently with the SSI, additional background samples will be collected to determine if pH, EC, SAR, boron, arsenic, barium, lead, and selenium are attributed to native soil conditions at the site. Background samples will be collected for analysis of metals in soil per ECMC Table 915-1, pH, SAR, EC, and boron. 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. Proposed SSI delineation and resampling figures are attached to previously submitted Form 27 Document #404282438, an updated SSI figure with adjusted background locations is attached to this Form 27.
 Additionally, a soil sample will be field screened at the field location SW of the FAC pad (GS01). The proposed tank battery sample location was selected based on the approved sampling map attached to the Form 27 Initial (ECMC Document #403207715).

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.

Refer to the Remediation Summary section below.

An SSI 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. Soil samples BH07 - BH10 were collected and analyzed under an amended sampling plan and were not submitted for analysis of EC, chromium, copper, silver, or zinc. The results of the 2023 SSI were previously reported under ECMC Document # 403731160.

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.

An SSI was conducted on 11/21/2024 & 12/06/2024 to delineate impacted media, during which eight soil borings were advanced to depths ranging from 8 to 15 ft. bgs. Soil borings BH07R, BH08R, & BH09R were advanced at the same locations as soil samples BH07, BH08, & BH09 to recollect sample locations which were previously sampled under an amended sampling plan for full Table 915-1 compliance, as well as vertically delineate the 1,2,4-TMB, 1,3,5-TMB, naphthalene, 1-M, 2-M, & EC exceedances observed at these locations. Based on the results of BH07R@14-15' & BH09R@14-15', the 1,2,4TMB, 1,3,5-TMB, naphthalene, 1-M, 2-M, EC, & SAR exceedances were successfully vertically delineated & found to be below Table 915-1 standards. Sample location BH08R requires further vertical & horizontal delineation.

Soil borings BH11, BH12, & BH16 were advanced surrounding BH09/BH09R to vertically & horizontally delineate impacts to identified at that location. Based on the results of BH11@14-15' & BH12@8-9', the 1,2,4-TMB, 1,3,5-TMB, naphthalene, 1-M, 2-M, and EC exceedances were successfully horizontally delineated to the northwest & found to be below Table 915-1 standards. Sample location BH16 requires further vertical & horizontal delineation to the south and west to address the ethylbenzene, 1,2,4-TMB, naphthalene, GRO, DRO, 1-M, 2-M, and SAR exceedances.

Soil borings BH13 & BH15 were advanced surrounding BH07/BH07R to vertically & horizontally delineate impacts identified at that location. Based on the results of BH13@14-15' & BH15@14-15', the 1,2,4-TMB, 1,3,5-TMB, naphthalene, 1-M, 2-M, and EC exceedances were successfully vertically delineated & found to be below Table 915-1 standards. Soil borings BH07/BH07R, BH13, & BH15 require further horizontal delineation to the north, east and south to address the 1,2,4-TMB, 1,3,5-TMB, naphthalene, 1-M, 2-M, EC, pH & SAR exceedances.

Soil Remediation Summary

In Situ Ex Situ
Bioremediation (or enhanced bioremediation)
Chemical oxidation
Air sparge / Soil vapor extraction
Natural Attenuation
Other
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.

No groundwater was encountered during decommissioning or site investigation activities.

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 Quarterly Update; SSIP Update

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. 03/28/2023

Proposed date of completion of Reclamation. 01/26/2027

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. 07/24/2025

Proposed completion of site investigation. 01/26/2026

REMEDIAL ACTION DATES

Proposed start date of Remediation. 01/26/2026

Proposed date of completion of Remediation. 07/26/2026

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 reflects the completion of the 4Q24 SSI at the Kildow PMC 31-2 tank battery and necessity for additional supplemental site investigation activities adjacent to the tank battery. The implementation schedule has not changed from the schedule proposed in previous Form 27 # 404282438, which is still pending approval as of the submission of this report. The proposed SSI is tentatively scheduled to be completed on 01/26/2026. The ECMC will be notified of any updates to the implementation schedule in a subsequent Form 27.

OPERATOR COMMENT

This Form 27 is being submitted as a 4Q25 quarterly update for the proposed site investigation at the Kildow PMC 31-2 Tank Battery. The previously submitted Remediation Workplan (Doc. #404282438) is currently "In Process" on Web Forms.

This Form 27 also updates the proposed background sampling figure attached to prior report, Form 27 Document #403207715 with corrected background location coordinates.

The implementation schedule reflects the completion of the 4Q24 supplemental site investigation (SSI) at the Kildow PMC 31-2 tank battery and necessity for additional SSI adjacent to the tank battery. The implementation schedule has not changed from the schedule proposed in previous Form 27 # 404282438, which is still pending approval as of the submission of this report. The proposed SSI is tentatively scheduled to be completed on 01/26/2026. The ECMC will be notified of any updates to the implementation schedule in a subsequent Form 27.

The results of the proposed SSI will be submitted on a subsequent Form 27. Quarterly reporting will be conducted until closure criteria are achieved for the remediation project.

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

Signed: Lillian Buck

Title: Environmental Consultant

Submit Date: _____

Email: tas-chevron-1@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**

| 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**

| Att Doc Num | Name |
|-------------|-------------------------|
| 404415941 | SITE INVESTIGATION PLAN |

Total Attach: 1 Files

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

| User Group | Comment | Comment Date |
|------------|---------|---------------------|
| | | Stamp Upon Approval |

Total: 0 comment(s)