

State of Colorado
Energy & Carbon Management Commission

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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 #: 31352 Initial Form 27 Document #: 403500867

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: 310041	API #: _____	County Name: WELD
Facility Name: HOUNDSKEEPER H-63N65W 1SENE	Latitude: 40.257490	Longitude: -104.605980	
** correct Lat/Long if needed: Latitude: 40.261273		Longitude: -104.611062	
QtrQtr: SENE Sec: 1 Twp: 3N Range: 65W Meridian: 6 Sensitive Area? Yes			
Facility Type: SPILL OR RELEASE	Facility ID: 485976	API #: _____	County Name: WELD
Facility Name: Houndskeeper H01-17 Tank Battery	Latitude: 40.261241	Longitude: -104.611334	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWNE Sec: 1 Twp: 3N Range: 65W Meridian: 6 Sensitive Area? Yes			

SITE CONDITIONS

General soil type - USCS Classifications SP

Most Sensitive Adjacent Land Use Rangeland

Is domestic water well within 1/4 mile? No

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

Prairie dog colony within 660ft
NA
Farming structures .25mi NE
NA

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	Lab Analysis and Field Screening, if encountered
Yes	SOILS	Refer to Tables and Figures	Lab 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 during the decommissioning of the Houndskeeper H-63N65W 15SESE (also known as Houndskeeper H01-17) Tank Battery. On 07/15/24, the tank battery was decommissioned in accordance with ECMC rules. Laboratory soil samples were collected from the partially-buried produced water vessel excavations bases (FS01 & FS02) and from the N, E, S, & W sidewalls (SS01-SS06). Due to elevated PID values observed in the field, all sidewall samples were submitted to the laboratory for analysis. Lab samples were also collected beneath the above-ground storage tanks (AST01 & AST02) and beneath the separator risers for the dumplines (SEP01-DL & SEP02-DL) and the flowlines (SEP01-FL & SEP02-FL). Field screening samples were collected beneath the flare (FLARE01) and meter houses (MH01 & MH02).

Laboratory analytical results indicated that benzene, naphthalene, benzo(a)anthracene, 1-methylnaphthalene (M), and/or 2-M were detected in exceedance of Table 915-1 regulation in samples AST02@0-6", FS01@3', SEP01-FL@2', and SS02@2' and were reported as historic releases (Form 19 # 403675137, Spill ID # 485976). Groundwater was not encountered during decommissioning.

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):

Soil samples were collected as described in the Initial Action Summary of this Form 27 per the approved work plan in the Initial Form 27 # 403500867. 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.

Proposed Groundwater Sampling

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

If groundwater is encountered during any future site investigation a grab groundwater sample will be collected and analyzed for all organic and inorganic 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, chloride and sulfate anions by EPA Method 300.0, and total dissolved solids (TDS) by Method SM 2540C.

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 of the tank battery area occurred during decommissioning activities. Field personnel screened all disturbed areas using visual and olfactory senses to determine confirmation sampling was required. A detailed summary of the tank battery decommissioning activities, including field notes, site photos, figures, and laboratory analytical results is attached to previous Form 27 # 403674617.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 37
Number of soil samples exceeding 915-1 19
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 1900

NA / ND

-- Highest concentration of TPH (mg/kg) 6430
-- Highest concentration of SAR 2.87
BTEX > 915-1 Yes
Vertical Extent > 915-1 (in feet) 28

Groundwater

Number of groundwater samples collected 0
Was extent of groundwater contaminated delineated? Yes
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?

On 10/24/24, five background soil samples were collected from five discrete locations (BKG01-BKG05) near the tank battery and analyzed for Table 915-1 metals, pH, SAR, EC, and boron. Due to their proximity to the impacted area, the backgrounds collected from these borings are not/will not be used for comparison to native soil conditions.

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?

Analytical results from the 4Q24 site investigation indicate that hydrocarbon impacts are present and have not been vertically or laterally delineated to date.

A site investigation will be conducted to delineate organic exceedances and collect additional background samples. Borings BH22-BH33 will be advanced to vertically and laterally delineate the organic exceedances observed during the 4Q24 investigation. Samples will be collected from the highest screening levels, depths corresponding with adjacent impacts, and the terminus of each boring. Should evidence of impacts be found in the outermost borings, step out borings will be advanced as needed. Delineation samples will be analyzed for all Table 915-1 contaminants. Background soil samples will be collected from borings BKG06-BKG14 to determine if elevated concentrations of Table 915-1 inorganics and metals can be attributed to native soil conditions. Background samples will be analyzed for Table 915-1 metals, pH, EC, SAR, and boron. The soil boring locations are illustrated on the site investigation map attached to this Form 27.

In accordance with the COAs on approved Form 27 # 404040386, if impacts are observed during soil boring a step out boring(s) shall be installed to define the horizontal extent of impacts to soil and groundwater and the monitoring wells shall be installed within 45 days of observations.

This site investigation has been updated from the proposal approved in prior Form 27 # 404040386 in order to include background borings BKG11-BKG14. Given that BKG01-05 cannot be used, more background data will be necessary to achieve closure. The site investigation will be completed in accordance with the proposed implementation schedule, and the results 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 supplemental site assessment (SSI) was conducted to delineate impacted media encountered during decommissioning. Borings BH01-BH10 were advanced via hand auger on 10/29/24. BH01 was advanced at the same location as soil sample SEP01-FL to vertically delineate impacts. BH02-BH05 were advanced surrounding BH01 to vertically and laterally delineate impacts identified at SEP01-FL. BH06 and BH11 were advanced to vertically delineate impacts at sample locations FS01 & AST02. BH07-BH10 were advanced surrounding BH06 & BH11 to gain vertical and lateral delineation.

Elevated screening levels were encountered during the hand auger effort, so the site investigation resumed on 11/05/24 and 11/14/24. Soil borings BH12-BH21 were advanced with a direct-push rig to delineate the impacts discovered in borings BH06, BH07, and BH09. Borings BH12 & BH19 were advanced to gain vertical delineation for borings BH07 & BH09, respectively. Borings BH13-18 & BH20-21 were advanced as step outs in an attempt to gain vertical and lateral delineation for the impacts. Refusal prevented further vertical delineation in borings BH17-BH21. Confirmation soil samples were collected from the interval that exhibited the highest PID and terminus of each boring, and analyzed for all Table 915-1 constituents. Groundwater was not encountered during the 4Q24 assessment.

Analytical results from the 4Q24 site investigation indicate that hydrocarbon impacts are present and have not been vertically or laterally delineated to date. Concentrations of Table 915-1 organic compounds exceeding regulatory standards in soil samples collected from the terminus of borings BH13, 15, 17, 18, & 19 indicate that further lateral delineation is required. Exceedances in samples collected from borings BH16, 17, & 20 indicate that further vertical and lateral delineation are required to the west, north, and east of the tank battery.

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.

As proposed in the Site Investigation Plan, a site investigation will be completed to delineate the organic exceedances discovered during the 4Q24 SSI and collect additional background samples. The investigation will be conducted per the proposed implementation schedule and the results will be submitted in a subsequent Form 27.

An engineered remedial excavation is the most likely remedial strategy to be chosen to address the majority of the source mass south of County Road 38. However, no definitive remedial strategy can be implemented until the maximum depth and lateral extents of the source mass are delineated. Following the delineation effort, alternative remedial strategies may be evaluated to address any impacts discovered under or adjacent to County Road 38.

Soil Remediation Summary

In Situ

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

_____ 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.

Groundwater was not encountered during the decommissioning or subsequent 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 Updated 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 (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? _____

Does the previous reply indicate consideration of background concentrations? _____

Does Groundwater meet Table 915-1 standards? _____

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. 01/24/2024

Proposed date of completion of Reclamation. 08/20/2027

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. 07/27/2023

Actual Spill or Release date, or date of discovery. 02/01/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 01/24/2024

Proposed site investigation commencement. 02/16/2026

Proposed completion of site investigation. 02/20/2026

REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/20/2026

Proposed date of completion of Remediation. 02/20/2027

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:

The implementation schedule has not changed from the schedule proposed in previous approved Form 27 # 404040386. The proposed site investigation is tentatively scheduled for 02/16/26. 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 an updated site investigation proposal for the Houndskeeper H01-17 Tank Battery. The results of the decommissioning were summarized in prior Form 27 # 403674617. The results of the 4Q24 site investigation were summarized in prior Form 27 # 404040386.

This site investigation has been updated from the proposal approved in prior Form 27 # 404040386 in order to include background borings BKG11-BKG14. Given that BKG01-05 cannot be used to compare site samples to native conditions, more background data will be necessary to achieve closure. The soil boring locations are illustrated on the site investigation map attached to this Form 27.

In accordance with the COAs on approved Form 27 # 404040386, if impacts are observed during soil boring a step out boring(s) shall be installed to define the horizontal extent of impacts to soil and groundwater and the monitoring wells shall be installed within 45 days of observations. An engineered remedial excavation is the most likely remedial strategy to be chosen to address the majority of the source mass south of County Road 38. However, no definitive remedial strategy can be implemented until the maximum depth and lateral extents of the source mass are delineated. Following the delineation effort, alternative remedial strategies may be evaluated to address any impacts discovered under or adjacent to County Road 38.

The implementation schedule has not changed from the schedule proposed in previous approved Form 27 # 404040386. The proposed site investigation is tentatively scheduled for 02/16/26. The ECMC will be notified of any updates to the implementation schedule in a subsequent Form 27.

The site investigation will be completed in accordance with the proposed implementation schedule, and the results will be submitted on a subsequent Form 27. Per ECMC Rule 913.e., 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: Jennifer Skweres

Title: Environmental Consultant

Submit Date: _____

Email: tas-chevron-6@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: 31352

COA Type

Description

0 COA	
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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

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Total Attach: 0 Files

General Comments

User Group

Comment

Comment Date

Environmental	Operator submitted the subject Form on 12/19/2025. ECMC returned the Form to draft for removal of extraneous attachments on 1/23/2026.	01/23/2026
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Total: 1 comment(s)