

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Candice (Nikki) Graber

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: <u>NOBLE ENERGY INC</u>	Operator No: <u>100322</u>	Phone Numbers
Address: <u>1099 18TH STREET SUITE 1500</u>		Phone: <u>(970) 730-7281</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u>		Mobile: <u>()</u>
Contact Person: <u>Dan Peterson</u>	Email: <u>danpeterson@chevron.com</u>	

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: <u>LOCATION</u>	Facility ID: <u>310041</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>HOUNDSKEEPER H-63N65W 1SENE</u>	Latitude: <u>40.257490</u>	Longitude: <u>-104.605980</u>	
	** correct Lat/Long if needed: Latitude: <u>40.261273</u>	Longitude: <u>-104.611062</u>	
QtrQtr: <u>SENE</u> Sec: <u>1</u> Twp: <u>3N</u> Range: <u>65W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>485976</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Houndskeeper H01-17 Tank Battery</u>	Latitude: <u>40.261241</u>	Longitude: <u>-104.611334</u>	
	** correct Lat/Long if needed: Latitude: _____	Longitude: _____	
QtrQtr: <u>NWNE</u> Sec: <u>1</u> Twp: <u>3N</u> Range: <u>65W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

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 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 pursuant to ECMC Rule 911 at the HOUNDSKEEPER H-63N65W 15SESE (also known as Houndskeeper H1-17) Facility and Tank Battery location. On 7/15/24, 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). Additionally, field screening samples were collected beneath the flare (FLARE01) and meter houses (MH01 & MH02).

Laboratory analytical results indicated that organic constituents benzene, naphthalene, benzo(a)anthracene, 1-methylnaphthalene (M), and 2-M were detected in exceedance of ECMC Table 915-1 regulation and were reported as historic releases (F19 Document # 403675137, Spill ID # 485976).

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):

Soils were collected as described in the Initial Action Summary of this Supplemental Form 27. 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. All samples collected were analyzed by a certified laboratory using approved ECMC 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 the site investigation a groundwater sample will be collected and analyzed for all organic and inorganic compounds 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):

A detailed summary of tank battery decommissioning activities, including field notes, site photos, figures, and laboratory analytical results, was attached to a previous Supplemental Form 27 (ECMC Document #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?

Five background soil samples (BKG01-BKG05) were collected near the facility and analyzed for metals in soil per ECMC Table 915-1, pH, SAR, EC, and boron. Background soil samples were collected from a depth ranging from 9-10 feet below ground surface (ft bgs). The maximum background concentrations for pH was observed to be 8.90. The maximum background concentrations with a 1.25x multiplier applied for arsenic, barium, cadmium, lead, nickel and selenium were calculated to be 8.09 mg/kg, 289 mg/kg, 0.673 mg/kg, 21.8 mg/kg, 14.3 mg/kg and 0.354 mg/kg, respectively.

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 conducted to vertically and horizontally delineate the organic impacts identified during the decommissioning and supplemental site investigation sample locations at the facility. Soil samples will be collected from the highest PID and clean terminus of each boring advanced and will be analyzed for the full ECMC Table 915-1 analytical suite. Concurrently with the additional site assessment, background soil samples will be collected and analyzed for pH, EC, SAR, boron and Table 915-1 metals to determine if the pH, arsenic, barium, cadmium, lead, nickel, and selenium concentrations are indicative of native material conditions. 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.

Please refer to the Remediation Summary section below.

REMEDICATION 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.

On 10/29/24 through 11/14/24, a supplemental site assessment (SSI) was conducted to delineate impacted media encountered during the initial decommissioning of the facility. Twenty-one soil borings were advanced to depths ranging between 1 to 28.5 feet bgs. 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. The organic compounds exceeding ECMC Table 915-1 standards identified during decommissioning at SEP01-FL were not repeated by resample location BH01. BH06 was advanced at the same location as soil sample FS01 to vertically delineate impacts at that location. BH07-BH10 were advanced surrounding BH06 to vertically and laterally delineate impacts identified at FS01. Analytical results indicated that impacted media persists at sample locations BH06, BH07 and BH09 due to organic exceedances above ECMC Table 915-1 standards. BH11 was advanced at the same location as soil sample AST02 to vertically delineate impacts at that location. The organic compounds exceeding ECMC Table 915-1 standards identified during decommissioning at AST02 were not repeated by resample location BH11. Soil borings BH12-BH21 were advanced to delineate the exceedances encountered in soil borings BH06, BH07 and BH09. Confirmation soil samples were collected from the interval that exhibited the highest PID and clean terminus of each boring and were submitted for the full ECMC Table 915-1 analytical suite. Analytical results indicated that impacted media persists in soil borings advanced. Groundwater was not encountered during this assessment.

An additional SSI will be completed to confirm and further vertically and horizontally delineate the organic exceedances observed at sample locations BH06-BH09 and BH12-BH20 during the 2024 SSI. Please refer to the Site Investigation Report section of this Supplemental Form 27 for additional information.

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.

Groundwater was not encountered during the initial decommissioning or subsequent site assessment activities conducted to date.

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 Site Investigation Report and 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 (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 been changed due to the completion of the October and November 2024 supplemental site investigation (SSI) at the Houndskeeper H1-17 facility and necessity for additional SSI activities adjacent to the facility. The proposed site investigation will be completed following the approval of this form

OPERATOR COMMENT

This Form 27 is being submitted to include the supplemental site investigation (SSI) results and propose additional site investigation activities for the Houndskeeper H01-17 Facility (REM #31352) location.

On 10/29/24 through 11/14/24, a supplemental site assessment (SSI) was conducted to delineate impacted media encountered during the initial decommissioning of the facility. Twenty-one soil borings were advanced to depths ranging between 1 to 28.5 feet bgs. 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. The organic compounds exceeding ECMC Table 915-1 standards identified during decommissioning at SEP01-FL were not repeated by resample location BH01. BH06 was advanced at the same location as soil sample FS01 to vertically delineate impacts at that location. BH07-BH10 were advanced surrounding BH06 to vertically and laterally delineate impacts identified at FS01. Analytical results indicated that impacted media persists at sample locations BH06, BH07 and BH09 due to organic exceedances above ECMC Table 915-1 standards. BH11 was advanced at the same location as soil sample AST02 to vertically delineate impacts at that location. The organic compounds exceeding ECMC Table 915-1 standards identified during decommissioning at AST02 were not repeated by resample location BH11. Soil borings BH12-BH21 were advanced to delineate the exceedances encountered in soil borings BH06, BH07 and BH09. Confirmation soil samples were collected from the interval that exhibited the highest PID and clean terminus of each boring and were submitted for the full ECMC Table 915-1 analytical suite. Analytical results indicated that impacted media persists in soil borings advanced. Groundwater was not encountered during this assessment.

Five background soil samples (BKG01-BKG05) were collected near the facility and analyzed for metals in soil per ECMC Table 915-1, pH, SAR, EC, and boron. Background soil samples were collected from a depth ranging from 9-10 feet below ground surface (ft bgs). The maximum background concentrations for pH was observed to be 8.90. The maximum background concentrations with a 1.25x multiplier applied for arsenic, barium, cadmium, lead, nickel and selenium were calculated to be 8.09 mg/kg, 289 mg/kg, 0.673 mg/kg, 21.8 mg/kg, 14.3 mg/kg and 0.354 mg/kg, respectively.

Further site investigation activities are required. Additional site assessment activities will be completed to further delineate the organic exceedances identified during decommissioning and the October and November 2024 SSI, and is presented in the Site Investigation Report section of the Form 27.

Based on currently available data, this project is not affected by data integrity irregularities & is not associated with Operator's data integrity review process & its Rule 525.e. Voluntary Disclosure. As part of its data integrity review process, Operator requested the lab protect the laboratory analytical report from subsequent unauthorized modification by anyone outside the lab, which resulted in the lab reissuing the original report with additional protections (Reissued Report). The Reissued Report from Summit Scientific was received on 4/1/2025 with the application of a Digital ID/Signature to support reissuance. The metadata associated with this Reissued Report also includes the lab representative's name, the date & time the laboratory reissued the report, & an explanation for the report reissuance. The Reissued Reports are attached to this submission.

Pursuant to Rule 913.e, quarterly reporting will be conducted until closure criteria are achieved for the remediation project. 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: McKenzie Reynolds

Title: Environmental Technician

Submit Date: 08/11/2025

Email: mreynolds@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: Candice (Nikki) Graber

Date: 11/20/2025

Remediation Project Number: 31352

COA Type

Description

	On the next form 27 Operator shall propose a remedial strategy, impacts were discovered at this location on 7/15/24; 393 days before this form was submitted.
	In accordance with Rule 914, 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.
	Operator submitted this form outside of the approved reporting schedule (Quarterly). In accordance with Rule 913.e.(3), Operator will adopt a quarterly reporting schedule (every 90 days); additional violations may result in enforcement. Note: there is no subsequent form in process and it is past due.

3 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

404040386	FORM 27-SUPPLEMENTAL-SUBMITTED
404261977	ANALYTICAL RESULTS
404261980	ANALYTICAL RESULTS

404261983	ANALYTICAL RESULTS
404301012	SITE INVESTIGATION REPORT
404311898	SITE INVESTIGATION PLAN

Total Attach: 6 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)