

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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Document Number:

403864257

Receive Date:

07/31/2024

Report taken by:

Taylor Robinson

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 & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 35464 Initial Form 27 Document #: 403799498

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: WELL	Facility ID: _____	API #: 123-23501	County Name: WELD
Facility Name: BOOS 20-25	Latitude: 40.278870	Longitude: -104.834850	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWSE	Sec: 25	Twp: 4N	Range: 67W
Meridian: 6	Sensitive Area? Yes		

Facility Type: SPILL OR RELEASE	Facility ID: 487221	API #: _____	County Name: WELD
Facility Name: BOOS 20-25	Latitude: 40.278870	Longitude: -104.834850	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWSE	Sec: 25	Twp: 4N	Range: 67W
Meridian: 6	Sensitive Area? Yes		

SITE CONDITIONS

General soil type - USCS Classifications SW

Most Sensitive Adjacent Land Use Cropland

Is domestic water well within 1/4 mile? Yes

Is surface water within 1/4 mile? Yes

Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

Mule Deer Severe Winter Range HPH 0.18mi NW
Riverine 0.19mi NW
Residential 0.25mi E
Farm Structure 0.16/0.23mi E

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	Lab analysis if encountered
Yes	SOILS	Refer to Tables and Figures	Lab analysis

INITIAL ACTION SUMMARY

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

Pursuant to ECOM Rule 911 a site investigation was conducted pertaining to the BOOS 20-25 wellhead cut and cap and flowline abandonment. Approximately 1521' of flowline will be removed following the 2024 harvest. The ECOM will be updated in a supplemental Form 27 if a portion of the flowline is abandoned in place due to field constraints. The wellhead was cut and capped per ECOM rules. Additionally, soil samples were field screened at the N-E-S-W sides of the wellhead. Soil samples were taken at the end points of the flowline. The form 44 abandonment number will be included on a forthcoming supplemental F27.

A reportable release was discovered on 5/18/24 at the BOOS 20-25 wellhead. An agricultural sprayer struck the wellhead resulting in an uncontrolled well event. An unknown volume of fluid was released. The release was reported to the ECOM on Initial Form 19 document #403795941 and Supplemental Form 19 document #403800020. Following the submittal of this Form 27, Noble will submit a second Supplemental Form 19 requesting the closure of spill/release ID 487221. A comprehensive data packet summarizing the initial spill response event is attached to this Form 27.

The flowline is currently planned for removal following the 2024 crop harvest, at which time soil sampling and screening samples will be taken along the flowline at any points of material change and/or hammer unions, and directional changes, in accordance with ECOM regulation and the approved Initial Form 27. Pursuant to the flowline removal, all laboratory analytical samples will be analyzed for full ECOM Table 915-1 contaminants of concern. Additional SSI activities will be proposed (as applicable) on a future Form 27 if further investigation is required following the flowline removal.

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):

A grab soil sample was collected at the base of the excavation or the area showing the highest degree of impact during field screening activities at the wellhead excavation. Additionally, soil samples were field screened at the N-E-S-W sides of the wellhead. Soil samples were taken at the endpoints of the flowline as to not disturb the area of abandonment. Soil samples will be taken along the flowline at any points of material change and/or hammer unions, directional changes, as well as at the bell holes on either side of a waterway when the flowline is able to be removed. 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 ECOM Table 915-1, and EC, SAR, pH, metals, and boron. All samples collected were analyzed by a certified laboratory using approved ECOM 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 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 wellhead 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. The ECMC Wellhead Closure Checklist was utilized and filled out during the abandonment process. A detailed summary of decommissioning activities, including field notes, site photos, figures, and laboratory analytical results, is attached to this Form 27.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 48

Number of soil samples exceeding 915-1 48

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 18000
0

NA / ND

-- Highest concentration of TPH (mg/kg) 16800

-- Highest concentration of SAR 5.04

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 6

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?

Eight background soil samples were collected near the wellhead and analyzed for metals in soil per ECMC Table 915-1, pH, SAR, EC and boron. Background soil samples were collected from a depth of 0 - 6 inches below ground surface. The maximum background concentration for arsenic, barium, cadmium, copper, lead, selenium, and silver with a 1.25x multiplier were calculated to be 5.69 mg/kg, 135 mg/kg, 1.18 mg/kg, 38.0 mg/kg, 44.6 mg/kg, 0.404 mg/kg, and 0.580 mg/kg, respectively. Additional justification to eliminate arsenic, cadmium, copper, lead, and silver as contaminants of concern using the nonparametric Mann-Whitney-Wilcoxon rank-sum test is presented in the Operator Comments section of this Form 27.

☐ 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?

Following the 2024 harvest, a remedial excavation will be advanced to remove soils impacted with organic compounds above ECMC Table 915-1 Residential Soil Screening Levels (RSSLS). Concurrently with the remedial excavation, additional site investigation activities will be completed to vertically and horizontally delineate any organic compounds observed during the spill site investigation and decommissioning above ECMC Table 915-1 Protection of Groundwater Soil Screening Levels (GSSLs). If groundwater is encountered within 20 feet of the ground surface, groundwater monitoring wells will be installed to determine if a pathway for contaminant migration to groundwater is present at the site. If groundwater is not encountered within 20 feet of the ground surface, groundwater monitoring wells will not be installed.

A proposed site investigation map is attached to this Form 27. Based on the constituents that exceeded ECMC Table 915-1 standards and background levels, Noble proposes to limit future soil sampling to BTEX, Naphthalene, 1,2,4-TMB, 1,3,5-TMB, TPH, benzo(a)anthracene, pH, barium, and selenium. Concurrently with the remedial excavation and delineation activities, additional background samples will be collected to determine if pH, barium, and selenium are attributed to native soil conditions at the site. The site investigation will be completed in accordance with the proposed implementation schedule, and the results of the investigation 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.

Following the 2024 harvest, a remedial excavation will be advanced to remove soils impacted with organic compounds above ECMC Table 915-1 Residential Soil Screening Levels (RSSLS). Concurrently with the remedial excavation, a supplemental site investigation will be completed to vertically and laterally delineate organic compounds observed during the spill site investigation and decommissioning above ECMC Table 915-1 Protection of Groundwater Soil Screening Levels (GSSLs), in accordance with the proposal presented in the Site Investigation Report section of this Form 27.

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.

Based on the constituents that exceeded ECMC Table 915-1 standards and background levels, Noble proposes to limit future soil sampling to BTEX, Naphthalene, 1,2,4-TMB, 1,3,5-TMB, TPH, benzo(a)anthracene, pH, barium, and selenium. Concurrently with the remedial excavation and delineation activities, additional background samples will be collected to determine if pH, barium, and selenium are attributed to native soil conditions at the site.

The flowline is currently planned for removal following the 2024 crop harvest, at which time soil sampling and screening samples will be taken along the flowline at any points of material change and/or hammer unions, and directional changes, in accordance with ECMC regulation and the approved Initial Form 27. Pursuant to the flowline removal, all laboratory analytical samples will be analyzed for full ECMC Table 915-1 contaminants of concern. Additional SSI activities will be proposed (as applicable) on a future Form 27 if further investigation is required following the flowline removal.

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.

If groundwater is encountered within 20 feet of the ground surface, groundwater monitoring wells will be installed to determine if a pathway for contaminant migration to groundwater is present at the site. If groundwater is not encountered within 20 feet of the ground surface, groundwater monitoring wells will not be installed.

REMEDATION 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 Decommissioning Sample Summary, Site Investigation & Supplemental Source Mass Removal 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:

REMEDATION COMPLETION REPORT

REMEDATION 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? ☐ 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. 05/20/2024

Proposed date of completion of Reclamation. 04/29/2026

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. 05/18/2024

Actual Spill or Release date, or date of discovery. 05/18/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 05/20/2024

Proposed site investigation commencement. 07/29/2024

Proposed completion of site investigation. 04/29/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 10/01/2024

Proposed date of completion of Remediation. 04/29/2026

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 has been changed due to the decommissioning of the Boos 20-25 wellhead / flowline and necessity to continue the ongoing site investigation activities, as well as conduct remedial excavation activities adjacent to the wellhead. The proposed remedial excavation and proposed site investigation will be completed concurrently following the approval of this form, landowner negotiations, and crew availability.

OPERATOR COMMENT

This Form 27 is being submitted to include the decommissioning results and reportable release at the Boos 20-25 wellhead and flowline. A remedial excavation and supplemental site investigation is presented in the Site Investigation Report and Remedial Action Plan sections of this Form 27.

Following receipt of analytical results, background and site data for arsenic, barium, cadmium, copper, lead, selenium, and silver in soil was compared using the nonparametric Mann-Whitney-Wilcoxon rank-sum test to assess if site concentrations were substantially higher than background concentrations. The results of the metals evaluation indicated that concentrations for arsenic, cadmium, copper, lead, and silver recorded in the site data are not substantially different from background concentrations and consequently, are indicative of native soil conditions. Based on the results, no further delineation or remediation activities pursuant to metals, with the exception of barium and selenium, are required at this location. As such, Noble is requesting to retain only barium and selenium for metals analysis during this remediation project. The metals assessment is attached to this Form 27.

Based on the constituents that exceeded ECMC Table 915-1 standards and background levels, Noble proposes to limit future soil sampling to BTEX, Naphthalene, 1,2,4-TMB, 1,3,5-TMB, TPH, benzo(a)anthracene, pH, barium, and selenium. Concurrently with the remedial excavation and delineation activities, additional background samples will be collected to determine if pH, barium, and selenium are attributed to native soil conditions at the site.

The flowline is currently planned for future removal, at which time soil sampling and screening samples will be taken along the flowline at any points of material change and/or hammer unions, and directional changes, in accordance with ECMC regulation and the approved Initial Form 27. Pursuant to the flowline removal, all laboratory analytical samples will be analyzed for full ECMC Table 915-1 contaminants of concern. Additional SSI activities will be proposed (as applicable) on a future Form 27 if further investigation is required following the flowline removal.

Quarterly reporting will be conducted until closure criteria are achieved for the remediation project. The results of the supplemental site investigation and remediation excavation 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: 07/31/2024

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: Taylor Robinson

Date: 09/17/2024

Remediation Project Number: 35464

COA Type

Description

	Operator shall collect discrete soil samples as described in the Rule 915.e.(2) Guidance Document. Operator shall submit all proposed soil samples for laboratory analysis of complete Table 915-1 Contaminants of Concern. If suspected impacts are encountered or analytes are detected in the initial soil sample(s), even if they are at a concentration below the allowable Table 915-1 SSLs, Operator shall collect confirmation soil samples for analysis of all Table 915-1 Contaminants of Concern until Operator has submitted sufficient characterization data to request and receive Director Approval of reduced list of contaminants of concern.
1 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

403864257	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403868089	ANALYTICAL RESULTS
403868114	OTHER
403868501	OTHER
403868508	SITE INVESTIGATION PLAN
403924294	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 6 Files

General Comments

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

Total: 0 comment(s)