

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

403676540

Receive Date:

03/20/2024

Report taken by:

RICK ALLISON

Site Investigation and Remediation Workplan (Supplemental Form)

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. However, this shall not preclude the Operator from taking immediate action to protect public health or safety, the environment, wildlife, or livestock.

This Form 27 describes site conditions as currently understood by the Operator; approval of this Form 27 by ECMC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27. This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

Name of Operator: NOBLE ENERGY INC	Operator No: 100322	Phone Numbers
Address: 1099 18TH STREET SUITE 1500		Phone: (970) 730-7281
City: DENVER	State: CO	Zip: 80202
Contact Person: Dan Peterson	Email: rbueuf27@chevron.com	Mobile: ()

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 17229 Initial Form 27 Document #: 402616629

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: SPILL OR RELEASE	Facility ID: 479965	API #: _____	County Name: WELD
Facility Name: Kastner 41-03	Latitude: 40.521874	Longitude: -104.649121	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWNE	Sec: 3	Twp: 6N	Range: 65W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SW Most Sensitive Adjacent Land Use Crop Land

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

Multiple Occupied buildings within 1/4 mile radius

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
No	GROUNDWATER	NA	Laboratory Analysis, if encountered
Yes	SOILS	Refer to Tables and Figures	Laboratory Analysis and Field Screening

INITIAL ACTION SUMMARY

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

Pursuant to ECMC Rule 911 a site investigation was conducted pertaining to the KASTNER 41-03 wellhead cut and cap and flowline removal. The wellhead was cut and capped per ECMC rules. A portion of the flowline was abandoned in place due to field constraints. The Flowline Abandonment Form 44 Document number is included under Related Forms.

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):

Three (3) grab soil samples were collected during decommissioning activities, and eighteen (18) borehole soil samples were collected during supplemental site assessment activities. The soil samples were submitted for analysis by a certified laboratory for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons) organic compounds in soil per ECMC Table 915-1, pH, and/or EC, SAR, and boron. Additionally, soil sample BH01@4' was analyzed for metals in soil per ECMC Table 915-1.

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, a grab groundwater will be collected and analyzed for all organic 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):

A supplemental Site Assessment was conducted to vertically and laterally delineate naphthalene at borehole soil sample BH04@12', which was identified during the initial site assessment activities. A total of four supplemental soil borings (BH04R, BH06 - BH08) were advanced in the area of impacts. Soil samples were collected and analyzed for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds in soil per ECMC Table 915-1, and pH. Groundwater was not encountered during site assessment activities, and moisture was not observed within 14 feet of the ground surface in all soil boring locations.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 32

Number of soil samples exceeding 915-1 12

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 800

NA / ND

-- Highest concentration of TPH (mg/kg) 117

-- Highest concentration of SAR 0.958

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 12

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?

A total of eleven (11) background soil samples were collected from six discrete locations (BG01 - BH06) near the former flowline and analyzed for pH, arsenic, and selenium. Background soil samples were collected from depths ranging between 4 to 8 feet below ground surface (ft bgs). Arsenic and selenium were observed in the background soil samples above ECOM Table 915-1 standards. A detailed discussion of the background sampling results is presented in the Operator Comments section.

☐ 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?

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.

The source was delineated through environmental site assessment activities completed between August 21, 2021 and September 19, 2022. During the site assessment, a total of nine soil borings (BH01 - BH08, and BH04R) were advanced to terminal depths ranging from 12-14 ft bgs. Boring BH01 was advanced at the same location as the waste characterization sample (FL01-B@4') to vertically delineate impacts at that location. The location of BH01 was determined by utilizing a Trimble Geo7X with sub-meter accuracy to ensure the soil boring would be advanced directly over waste characterization sample FL01-B@4'. Borings BH02 - BH05 were advanced surrounding BH01 to vertically and laterally delineate impacts identified at FL01-B@4'. Boring BH04R was advanced at the same location as BH04 to determine if the naphthalene exceedance identified at sample location BH04 @12' was a legitimate detection, and to provide further vertical delineation. Borings BH06 - BH08 were advanced surrounding BH04 and BH04R to laterally delineate the potential naphthalene exceedance identified at sample location BH04@12'. Soil samples were collected and analyzed for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds in soil per ECMC Table 915-1, and pH.

Based on the justification to eliminate metals as contaminants of concern presented in the Operator Comment section, the absence of a pathway for contaminant migration to groundwater presented in the Remediation Summary section, and the full delineation of organic compounds in soil above ECMC Table 915-1 Groundwater Protection Soil Screening Levels (GSSLs), Noble proposes to apply ECMC Table 915-1 Residential Soil Screening Levels (RSSLs) to this site. The application of ECMC Table 915-1 RSSLs eliminates the detected concentrations of organic compounds in soil as contaminants of concern.

A detailed reclamation plan will be generated and submitted to address the elevated pH at the site, prior to requesting NFA.

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.

Based on the results of the site assessment, organic compounds in soil detected above ECMC Table 915-1 GSSLs identified during decommissioning and/or site assessment activities, were not repeated by soil boring and verification soil sampling activities, and have therefore been fully delineated. Groundwater was not encountered within 14 ft of the ground surface during the site assessment soil boring activities. Additionally, a desktop review of Colorado's Division of Water Resources (DWR) Well Permit Research Mapper was performed to determine the depth to water below ground surface in permitted water wells within a 0.75-mile radius of the Site. For a visual representation of the results of this inquiry refer to Figure 3 included in the attached site assessment report. Seven permitted water wells were identified within the 0.75-mile radius. According to the permit records, the average static groundwater level in this region is approximately 97 ft bgs. Since groundwater is recorded to be approximately 97 ft bgs in the region of the Site, and since soil impacts at the Site are limited to less than or equal to 12 ft bgs, there is no pathway for contaminant migration to the groundwater table. As such, Noble proposes to utilize the ECMC Table 915-1 RSSLs when evaluating soil sample analytical results at this site. The use of ECMC Table 915-1 RSSLs eliminates the 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and selenium concentrations identified at the Site as contaminants of concern.

Soil Remediation Summary

☐ In Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☐ Ex Situ

_____ Excavate and offsite disposal

_____ If Yes: Estimated Volume (Cubic Yards) _____

_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____

_____ Excavate and onsite remediation

_____ Land Treatment

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Other _____

Groundwater Remediation Summary

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

GROUNDWATER MONITORING

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

☒ Quarterly☐ Semi-Annually☐ Annually☐ Other

☐ Request Alternative Reporting Schedule:

☐ Semi-Annually☐ Annually☐ Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

Report Type:

☐ Groundwater Monitoring☐ Land Treatment Progress Report☐ O&M Report☒ Other Site Assessment Report

Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

Noble intends to directly address the costs of remediation at the locations as part of our asset retirement obligation process and operations. Noble has general liability insurance (policy MWZZ 316714) and financial assurance in compliance with ECMC rules. Records are available on the ECMC's website. The cost for remediation is an estimate only, costs may change upwards or downward based on site-specific information. Noble makes no representation or guarantees as to the accuracy of the estimate.

Operator anticipates the remaining cost for this project to be: \$ 50000

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Volume of E&P Waste (solid) in cubic yards

E&P waste (solid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No

If YES:

☐ Compliant with Rule 913.h.(1).

☐ Compliant with Rule 913.h.(2).

☐ Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards? No

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? Yes

Is additional groundwater monitoring to be conducted? _____

Operator shall comply with the ECMC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

RECLAMATION PLAN

RECLAMATION PLANNING

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing.

Reclamation will be in accordance with ECMC 1000 Series Rules. A detailed reclamation plan will be generated to address the elevated pH at the site.

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. 04/03/2021

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

IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

PRIOR DATES

Date of Surface Owner notification/consultation, if required. 01/07/2021

Actual Spill or Release date, or date of discovery. 05/10/2021

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/03/2021

Proposed site investigation commencement. 08/12/2021

Proposed completion of site investigation. 09/13/2022

REMEDIAL ACTION DATES

Proposed start date of Remediation. 09/13/2022

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

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

☒ Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

The implementation schedule has been updated to reflect the necessity for the generation of a detailed reclamation plan to address the elevated pH at the site, prior to requesting NFA.

OPERATOR COMMENT

Denied 10/30/2024 This Form 27 is being re-submitted to address the COAs that were issued for the previously denied Form 27 (Document No. 403494490) for the KASTNER 41-03 wellhead and flowline location. Per the COAs associated with denied Form 27 Document No. 403494490, a detailed reclamation plan will be generated to address the pH exceedances at the site, prior to requesting an NFA determination.

Eleven background soil samples were collected from six discrete locations (BG01 - BH06) near the former flowline location at comparable depths and soil composition to the investigation sample locations. The lithology between the investigation and background sample locations was consistent and observed to be poorly-graded sands (SP) across this entire site. As such, the maximum background values of arsenic, selenium, and pH (x1.25 for metals) were compared to the arsenic, selenium, and pH results for the site investigation soil samples. The maximum background level for arsenic x1.25 was calculated to be 5.86 mg/kg. The maximum background level for selenium x1.25 was calculated to be 1.06 mg/kg. Based on a comparison to the background arsenic and selenium concentrations, the arsenic and selenium results for all of the investigative soil boring samples were within site-specific background levels. As a result, arsenic and selenium should not be considered a contaminant of concern. The maximum background result for pH was 8.17. Based on a comparison to the background pH levels, the pH results for various investigative soil boring samples collected during December 2021 exceeded the allowable range in ECMC Table 915-1, as well as the site-specific background levels. However, all pH exceedances were limited to less than 0.5 standard pH units greater than the upper limit in Table 915-1 of 8.30, which represents a 6% variation from the pH standard. The elevated pH results are therefore considered to be de minimis in quantity and within the natural soil variability of the region. A detailed reclamation plan will be generated and submitted to address the elevated pH at the site, prior to requesting NFA.

Groundwater was not encountered during the decommissioning or supplemental site investigation activities completed at this location. As such, a desktop review of Colorado's Division of Water Resources (DWR) Well Permit Research Mapper was performed to determine the depth to water below ground surface in permitted water wells within a 0.75-mile radius of the Site. For a visual representation of the results of this inquiry refer to Figure 3 included in the attached site assessment report. Seven permitted water wells were identified within the 0.75-mile radius. According to the permit records, the average static groundwater level in this region is approximately 97 ft bgs. Since groundwater is recorded to be approximately 97 ft bgs in the region of the Site, and since soil impacts at the Site are limited to less than or equal to 12 ft bgs, there is no pathway for contaminant migration to the groundwater table. As such, Noble proposes to utilize the ECMC Table 915-1 RSSLs when evaluating soil sample analytical results at this site. The use of ECMC Table 915-1 RSSLs eliminates the 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and selenium concentrations identified at the Site as contaminants of concern.

Quarterly reporting will be conducted until closure criteria are achieved for the remediation project. A detailed reclamation plan will be generated and submitted to address the elevated pH at the site, prior to requesting NFA.

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

Signed: Allan Engelhardt

Title: Environmental Consultant

Submit Date: 03/20/2024

Email: chevroneform@tasman-geo.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with ECMC Rules and applicable orders and is hereby approved.

ECMC Approved: _____

Date: _____

Remediation Project Number: 17229

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

403676540	FORM 27-SUPPLEMENTAL-SUBMITTED
403861012	SITE INVESTIGATION REPORT

Total Attach: 2 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	<p>This form is denied for the same reasons the previous Form 27 Document #403494490 submitted on November 16 2023 was denied. Operator's analysis of depth to groundwater is incorrect. The Operator uses inappropriate water wells screened in a confined or semi-confined aquifer for depth to groundwater determination. In addition, the Operator's ongoing Remediation Project #16624 in the same quarter section documents the presence of groundwater at less than 10 feet below ground surface. While groundwater was not encountered at this site in soil borings at 14 feet, the Operator has not provided sufficient evidence for the lack of a pathway to groundwater and Table 915-1 Protection of Groundwater Soil Screening Levels apply.</p> <p>However, subsequent soil sampling at the location of the sample that initially contained concentrations of organics in soil in excess of the Table 915-1 Protection of Groundwater Soil Screening Levels apply demonstrated that the results were not replicated.</p> <p>Operator has provided background information to demonstrate that the metals in confirmation soil samples are within 1.25 x site specific background concentrations of metals.</p> <p>Therefore, ECMC does not require further investigation at the site with the exception of documented pH levels that exceed Table 915-1 levels for soil suitability for reclamation. ECMC notes the Operator submitted Supplemental Form 27 Document #403955299 on October 15, 2024 with a plan for investigation of pH.</p>	10/30/2024

Total: 1 comment(s)