

State of Colorado
Energy & Carbon Management Commission

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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) 730-7281
City: DENVER	State: CO	Zip: 80202
Contact Person: Dan Peterson	Email: danpeterson@chevron.com	Mobile: ()

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 12255 Initial Form 27 Document #: 401891478

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

No Multiple Facilities

Facility Type: SPILL OR RELEASE	Facility ID: 459197	API #: _____	County Name: WELD
Facility Name: Munds 13-29, Dickerson 14-29A	Latitude: 40.276357	Longitude: -104.690061	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SESW	Sec: 29	Twp: 4N	Range: 65W
Meridian: 6	Sensitive Area? Yes		

SITE CONDITIONS

General soil type - USCS Classifications CL

Most Sensitive Adjacent Land Use Crop Land

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

Occupied building 480'

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	Laboratory Analytical
Yes	SOILS	180' X 120' X 15'	Laboratory Analytical

INITIAL ACTION SUMMARY

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

During tank battery dismantlement historical impacts were discovered in the vicinity of the produced water vessel. A site assessment was completed and 30 cubic yards of impacted soil was removed and transported to a certified landfill under signed waste manifest.

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):

Thirty four grab soil samples were collected during site investigation procedures and transported to a Summit Scientific by Tasman Geosciences under proper chain of custody procedures and analyzed for TPH-DRO, TPH-GRO, BTEX, and Naphthalene by EPA Methods 8015 and 8260b. Additionally SS03@3' was also analyzed for SAR, EC, and pH by EPA 6020/USDA60 6(2, 3A), EPA Method 120.1, and Physical Parameters by APHA/ASTM/EPA Methods.

Proposed Groundwater Sampling

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

Twelve groundwater samples were collected for analysis of BTEX, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene, sulfates, chlorides, and TDS during initial site investigation activities.

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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 113

Number of soil samples exceeding 915-1 36

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

Approximate areal extent (square feet) 16700

NA / ND

-- Highest concentration of TPH (mg/kg) 4659

-- Highest concentration of SAR 1.48

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 28

Groundwater

Number of groundwater samples collected 28

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 5

Number of groundwater monitoring wells installed 28

Number of groundwater samples exceeding 915-1 12

-- Highest concentration of Benzene (µg/l) 15000

ND Highest concentration of Toluene (µg/l)

-- Highest concentration of Ethylbenzene (µg/l) 730

-- Highest concentration of Xylene (µg/l) 11000

NA 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?

☐ 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?

Between August 31, 2023, and April 9, 2024, 20 soil borings (BH33 - BH38, BH40, BH42 - BH44, and BH46 - BH55) were advanced surrounding the current monitoring well network to delineate hydrocarbon impacts in soil and groundwater. Seventy-four soil samples were collected from the borings at depths ranging from approximately 9-10 feet to 28-29 feet bgs and were submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-TMB, 1,3,5-TMB, and TPH(C6-C36) per the approved sampling and analysis plan in the approved Supplemental Form 27 (Document No. 403515024).

Soil analytical results indicated that organic compound concentrations were in exceedance of the applicable ECMC regulatory standards in eight soil boring locations (BH40, BH42 - BH44, BH34, BH35, BH38, and BH46)

During delineation activities, 14 soil borings were converted to monitoring well locations (BH33 - BH36, BH42 - BH44, BH46, BH47, BH49 - BH52, and BH54). These monitoring wells were added to the monitoring well network to delineate dissolved-phase hydrocarbon impacts and establish point of compliance (POC) on site.

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 conceptual site model is being developed to optimize the placement of additional monitoring wells and to determine the groundwater flow mechanics at the site. Previous down-gradient groundwater monitoring wells were installed at the site but have been continuously gauged dry, suggesting that groundwater elevations decrease significantly from east to west at the site. As such, remedial actions are currently being developed to address the residual impacts at the source area, which will be submitted on a subsequent Form 27.

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.

Active remediation has been underway and completed in phases at the Former Munds 13-29, Dickerson 14-29A Tank Battery (Site) since the fourth quarter 2018. Noble is currently evaluating expedited remedial methods as of the third quarter 2024.

The primary remedial objectives established for the Site include:

1. Dissolved-phase contaminant plume stabilization and reduction:

a. To date, Tasman has worked to delineate the full extent of the dissolved-phase contaminant plume and it is currently defined to an area that is approximately 47,500 feet² in third quarter 2024.

2. Reduce dissolved-phase contaminant concentrations to below ECMC Table 915-1 standards at the Site.

a. In progress for applicable volatile organic compound (VOC) constituents at monitoring wells BH16, BH17, BH21, BH22, BH25, BH26, BH30, BH31, BH35, BH36, BH42, BH43, and BH46.

1. VOCs at the remaining 19 wells are currently either compliant with ECMC Table 915-1 standards or there was not enough water (4 wells) to produce a sample in the third quarter 2024.

During the fourth quarter 2024, Noble is continuing to delineate the extent of the dissolved phase contaminant plume and is evaluating the optimal Site remedial approach to achieve the remedial objective for this site.

Soil Remediation Summary

☐ In Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☒ Ex Situ

Yes _____ Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) _____ 1010

Name of Licensed Disposal Facility or ECMC Facility ID # _____

No _____ Excavate and onsite remediation

_____ Land Treatment

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Other _____

Groundwater Remediation Summary

No _____ Bioremediation (or enhanced bioremediation)

No _____ Chemical oxidation

No _____ Air sparge / Soil vapor extraction

No _____ Natural Attenuation

No _____ 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.

Noble will conduct quarterly groundwater monitoring at the 32 site groundwater monitoring wells (BH16-BH37, BH42-BH44, BH46, BH47, BH49-BH52, and BH54). Groundwater samples will be submitted to Summit Scientific Laboratory for analysis of BTEX, naphthalene, 1,3,5-TMB, 1,2,4-TMB, TDS, chloride, and sulfate in accordance with Table 915-1. Do to dry conditions on site, samples were not collected from monitoring wells BH23, BH27, BH29, and BH32 during the second quarter 2024.

Third quarter 2024 analytical results indicated that organic compound concentrations were in exceedance of the applicable ECMC regulatory standards in 12 monitoring well locations (BH17, BH21, BH22, BH25, BH26, BH30, BH31, BH35, BH36, BH42, BH43, and BH46). Organic compound concentrations were in compliance with the applicable regulatory standards in the remaining 16 sampled locations.

In addition, chloride anion concentrations were in exceedance of the applicable ECMC regulatory standards and greater than 1.25x the background concentrations recorded in the up-/cross-gradient monitoring wells (BH19, BH20, BH47, BH49, and BH52) in nine monitoring well locations. TDS and sulfate anion concentrations were in compliance with the applicable standards or within 1.25x the background concentrations in all sampled monitoring well locations.

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

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? Yes

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

No beneficial use

Volume of E&P Waste (solid) in cubic yards 1010

E&P waste (solid) description Impacted soil above ECMC Table 910-1 standards

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Buffalo Ridge Landfill

Volume of E&P Waste (liquid) in barrels 0

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 Rule 1004.

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. 07/02/2019

Proposed date of completion of Reclamation. 12/30/2030

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. 04/06/2021

Actual Spill or Release date, or date of discovery. 11/28/2018

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/19/2018

Proposed site investigation commencement. 08/31/2023

Proposed completion of site investigation. 04/09/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/27/2019

Proposed date of completion of Remediation. 12/31/2030

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:

Delineation activities were completed between August 31, 2023 and April 9, 2024. No further site assessment activities are scheduled at this time. Following assessment of future analytical results, further delineation activities may be scheduled and will be updated in the implementation schedule at least 14 days before commencement.

OPERATOR COMMENT

This Supplemental Form 27 was submitted to summarize quarterly groundwater monitoring activities and analytical results collected during the third quarter 2024 at the Munds 13-29, Dickerson 14-29A location.

Third quarter 2024 analytical results indicated that organic compound concentrations were in exceedance of the applicable ECMC regulatory standards in 12 monitoring well locations (BH17, BH21, BH22, BH25, BH26, BH30, BH31, BH35, BH36, BH42, BH43, and BH46). Organic compound concentrations were in compliance with the applicable regulatory standards in the remaining 16 sampled locations.

In addition, chloride anion concentrations were in exceedance of the applicable ECMC regulatory standards and greater than 1.25x the background concentrations recorded in the up-/cross-gradient monitoring wells (BH19, BH20, BH47, BH49, and BH52) in nine monitoring well locations. TDS and sulfate anion concentrations were in compliance with the applicable standards or within 1.25x the background concentrations in all sampled monitoring well locations.

Per the COA issued in the approved Supplemental Form 27 (Document No. 403686236), please see the below discussion on remediation efforts at this location:

Active remediation has been underway and completed in phases at the Former Munds 13-29, Dickerson 14-29A Tank Battery (Site) since the fourth quarter 2018. Noble is currently evaluating expedited remedial methods as of the third quarter 2024.

The primary remedial objectives established for the Site include:

1. Dissolved-phase contaminant plume stabilization and reduction:

a. To date, Tasman has worked to delineate the full extent of the dissolved-phase contaminant plume and it is currently defined to an area that is approximately 47,500 feet² in third quarter 2024.

2. Reduce dissolved-phase contaminant concentrations to below ECMC Table 915-1 standards at the Site.

a. In progress for applicable volatile organic compound (VOC) constituents at monitoring wells BH16, BH17, BH21, BH22, BH25, BH26, BH30, BH31, BH35, BH36, BH42, BH43, and BH46.

1. VOCs at the remaining 19 wells are currently either compliant with ECMC Table 915-1 standards or there was not enough water (4 wells) to produce a sample in the third quarter 2024.

During the fourth quarter 2024, Noble is continuing to delineate the extent of the dissolved phase contaminant plume and is evaluating the optimal Site remedial approach to achieve the remedial objective for this site.

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

Signed: Mike Medina

Title: Environmental Consultant

Submit Date: _____

Email: tas-chevron-2@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: 12255

COA Type

Description

0 COA	

ATTACHMENT LIST

Upon approval, the approved Form 27 and all listed attachments will be indexed to the Remediation Project file. Only the approved Form 27 will also be indexed to the related Facilities.

Att Doc Num

Name

403988953	MONITORING REPORT
403988954	ANALYTICAL RESULTS

Total Attach: 2 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)