

**State of Colorado
Energy & Carbon Management Commission**1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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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 #: 9150 Initial Form 27 Document #: 2143666

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: 441780	API #: _____	County Name: WELD
Facility Name: CHESNUT G 22-3,4 Historical Spill	Latitude: 40.304656	Longitude: -104.654142	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENW	Sec: 22	Twp: 4N	Range: 65W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SC

Most Sensitive Adjacent Land Use Agricultural Land

Is domestic water well within 1/4 mile? No

Is surface water within 1/4 mile? Yes

Is groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

Surface water 1069'W

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
Yes	GROUNDWATER	Refer to Tables and Figures	Lab Analytical
Yes	SOILS	45' X 54' X 7' bgs	Lab 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.

The facility was shut in and a site assessment was scheduled. Refer to Spill/Release Report Document #400840208. Chesnut G22-3,4 location.

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):

Twenty seven (27) soil samples were collected and analyzed for TPH-DRO, TPH-GRO, BTEX, and Naphthalene to confirm source impacts were remediated.

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

Nineteen (19) groundwater samples were collected during site investigation activities to determine the extent of dissolved phase BTEX.

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 27
Number of soil samples exceeding 915-1 1
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 2430

NA / ND

-- Highest concentration of TPH (mg/kg) 240
-- Highest concentration of SAR 0.771
BTEX > 915-1 Yes
Vertical Extent > 915-1 (in feet) 7

Groundwater

Number of groundwater samples collected 12
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 9
Number of groundwater monitoring wells installed 35
Number of groundwater samples exceeding 915-1 3

-- Highest concentration of Benzene (µg/l) 93
ND Highest concentration of Toluene (µg/l)
-- Highest concentration of Ethylbenzene (µg/l) 1.3
-- Highest concentration of Xylene (µg/l) 5.4
NA Highest concentration of Methane (mg/l)

Surface Water

0 Number of surface water samples collected
0 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?

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.

Impacted soil will be excavated and treated onsite by chemical oxidation using hydrogen peroxide. The stockpiled soil will be processed through a soil shredder, and sprayed with hydrogen peroxide as it passes through the shredder. After confirmation analytical testing is complete, treated soil will be used as backfill material. Additional source material will be excavated during plugging and abandonment procedures.

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.

An air sparge and soil vapor extraction remediation system was installed to treat residual soil and dissolved phase groundwater. Twenty-two (22) monitoring wells were installed and sampled on a quarterly basis to monitor the dissolved plume and ensure it is stable and decreasing. Per the approved Supplemental Form 27 (Document No. 403643128), monitoring wells BH12R, BH23, and BH25 were removed from the monitoring well network beginning in the second quarter 2024.

Per the COA issued in the approved Supplemental Form 27 (Document No. 403873698), please see the following discussion of past and future remediation efforts at this remediation project:

Active remediation efforts at the Chesnut G 22-3, 4 location have been operational in various phases since the fourth quarter 2015, with the current remediation system in operation since March 2, 2023. The dissolved-phase plume has been stabilized and reduced. To date, the area of the plume has decreased from approximately 15,000 square feet in the third quarter 2016 to approximately 300 square feet in the third quarter 2024. Additionally, organic compound concentrations were in exceedance of ECMC standards in eight monitoring wells in the third quarter 2016 with a peak benzene concentration of 4,500 ug/L in BH01R. During the third quarter 2024, only one monitoring well (BH35) had a benzene concentration (100 ug/L) in exceedance of ECMC regulatory standards.

Evaluation and optimization of the current remediation system is currently being assessed to expedite remediation efforts and the results of the assessment will be included in a subsequent Supplemental Form 27.

Soil Remediation Summary

☒ In Situ

No Bioremediation (or enhanced bioremediation)

No Chemical oxidation

Yes Air sparge / Soil vapor extraction

Yes Natural Attenuation

No Other

☒ Ex Situ

No Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards)

Name of Licensed Disposal Facility or ECMC Facility ID #

Yes Excavate and onsite remediation

No Land Treatment

No Bioremediation (or enhanced bioremediation)

Yes Chemical oxidation

No Other

Groundwater Remediation Summary

No Bioremediation (or enhanced bioremediation)

No Chemical oxidation

Yes Air sparge / Soil vapor extraction

Yes 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.

Groundwater monitoring will continue at the twelve (12) site monitoring wells (BH01R, BH02, BH03R, BH04R, BH08R, BH17, BH20, BH21, BH22, BH24, BH33R4, and BH35) until closure criteria are achieved. Groundwater samples will be analyzed for BTEX, naphthalene, 1,2,4-TMB, 1,3,5-TMB, TDS, chloride, and sulfate on a quarterly basis. Per the approved Supplemental Form 27 (Document No. 403643128), monitoring wells BH12R, BH23, and BH25 were removed from the monitoring well network following the first quarter 2024.

Fourth quarter 2024 analytical results indicated that the benzene concentration was in exceedance of the applicable ECMC regulatory standard in monitoring wells BH21 and BH35. Organic compound concentrations were in compliance with the applicable regulatory standards in the remaining 10 sampled monitoring well locations.

Up-gradient monitoring wells BH17 and BH33R4 were used as background wells for comparison to inorganic analytes at the Site. When compared to background levels, TDS and sulfate concentrations were in exceedance of the applicable regulatory standards and greater than 1.25x the background concentrations in monitoring well BH01R. Chloride anion concentrations were within 1.25x the background concentrations in all 10 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:

During source remediation soil shredding with hydrogen peroxide was utilized to remediate hydrocarbon impacted soil above ECMC Table 910-1 standards.

Volume of E&P Waste (solid) in cubic yards 772

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

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Beneficial reuse

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 compliance with the ECMC 1000 series rule. In addition, subsequent to receipt of a No Further Action (NFA) designation, monitoring wells and remediation wells will be properly plugged and abandoned per Colorado Division of Water Resources standards.

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. 05/13/2015

Proposed date of completion of Reclamation. 12/31/2026

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. 06/01/2020

Actual Spill or Release date, or date of discovery. 05/13/2015

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/19/2015

Proposed site investigation commencement. 06/05/2015

Proposed completion of site investigation. 06/05/2015

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/19/2015

Proposed date of completion of Remediation. 12/31/2026

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:

OPERATOR COMMENT

This Supplemental Form 27 was submitted to summarize quarterly groundwater monitoring and analytical results collected during the fourth quarter 2024 at the Chesnut G 22-3, 4 location.

Fourth quarter 2024 analytical results indicated that the benzene concentration was in exceedance of the applicable ECMC regulatory standard in monitoring wells BH21 and BH35. Organic compound concentrations were in compliance with the applicable regulatory standards in the remaining 10 sampled monitoring well locations.

Up-gradient monitoring wells BH17 and BH33R4 were used as background wells for comparison to inorganic analytes at the Site. When compared to background levels, TDS and sulfate concentrations were in exceedance of the applicable regulatory standards and greater than 1.25x the background concentrations in monitoring well BH01R. Chloride anion concentrations were within 1.25x the background concentrations in all 10 sampled monitoring well locations.

The COA issued in the approved Supplemental Form 27 (Document No. 403873698) was addressed in the Supplemental Form 27 (Document No. 403942811). This form is currently in process and pending review.

Evaluation and optimization of the current remediation system is currently being assessed to expedite remediation efforts and the results of the assessment will be included in a subsequent Supplemental Form 27.

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: 9150

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

404046516	MONITORING REPORT
404046517	ANALYTICAL RESULTS

Total Attach: 2 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)