

State of Colorado  
Energy & Carbon Management Commission

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403749596  
Receive Date:  
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Report taken by:  
Abdul Elnajdi

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<br>Phone: <u>(970) 730-7281</u><br>Mobile: <u>( )</u> |
| Address: <u>1099 18TH STREET SUITE 1500</u> |                                    |   |
| City: <u>DENVER</u>                         | State: <u>CO</u>                   | Zip: <u>80202</u>   |
| Contact Person: <u>Dan Peterson</u>         | Email: <u>rbueuf27@chevron.com</u> |   |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 21986 Initial Form 27 Document #: 402944529

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>424373</u>                                | API #: _____                  | County Name: <u>WELD</u>  |
| Facility Name: <u>PATRIOT B16-69HN</u> | Latitude: <u>40.408030</u>                                | Longitude: <u>-104.563140</u> |   |
|  | ** correct Lat/Long if needed: Latitude: <u>40.408172</u> | Longitude: <u>-104.561932</u> |   |
| QtrQtr: <u>SWSW</u>                    | Sec: <u>9</u>   | Twp: <u>5N</u>                | Range: <u>64W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u> |

|  |  |                               |   |
|--|--|-------------------------------|---|
| Facility Type: <u>WELL</u>             | Facility ID: _____                             | API #: <u>123-34001</u>       | County Name: <u>WELD</u>  |
| Facility Name: <u>PATRIOT B16-69HN</u> | Latitude: <u>40.408030</u>                     | Longitude: <u>-104.563150</u> |   |
|  | ** correct Lat/Long if needed: Latitude: _____ | Longitude: _____              |   |
| QtrQtr: <u>SWSW</u>                    | Sec: <u>9</u>                                  | Twp: <u>5N</u>                | Range: <u>64W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u> |

Facility Type: SPILL OR RELEASE Facility ID: 483387 API #: \_\_\_\_\_ County Name: WELD  
 Facility Name: Patriot B16-69HN Latitude: 40.408030 Longitude: -104.563150  
 \*\* correct Lat/Long if needed: Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_  
 QtrQtr: SWSW Sec: 9 Twp: 5N Range: 64W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 483933 API #: \_\_\_\_\_ County Name: WELD  
 Facility Name: Patriot B16-69HN Tank Battery Latitude: 40.408214 Longitude: -104.562209  
 \*\* correct Lat/Long if needed: Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_  
 QtrQtr: SWSW Sec: 9 Twp: 5N Range: 64W 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? Yes

Is groundwater less than 20 feet below ground surface? No

**Other Potential Receptors within 1/4 mile**

- Freshwater Pond 0.5mi E, 0.03mi N, 0.21mi SE
- Freshwater Emergent Wetlands 0.08/0.14/0.19mi E, 0.05/0.12/0.19mi N
- Riverine 0.15/0.19mi N, 0.14/0.17mi NE
- Riparian Forested Shrub 0.06/0.19mi NE, 0.1mi N
- Riparian Herbaceous 0.09/0.15mi E, 0.08mi N
- Freshwater Forested Shrub Wetland 0.22mi E, 0.16/0.19mi NE
- HWY 0.11mi W
- Residential 0.14mi NW
- Industrial/Farm Structures 0.11/0.16mi NW, 0.16/0.2/0.21mi S

# 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          | 10' X 10' X 6' BGS | 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.

FACILITY: A site investigation was conducted pursuant to COGCC Rule 911 at the PATRIOT T5N-R64W-S9 L01 Tank Battery location.  
 WELL: Pursuant to COGCC Rule 911 a site investigation was conducted pertaining to the PATRIOT B16-69HN wellhead cut and cap and flowline removal. Approximately 390' of flowline was removed and flowline closure sampling data will be submitted on a subsequent Form 27. The wellhead was cut and capped per COGCC rules. The Flowline Pre-Abandonment Notice 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 ):

At the facility, a grab confirmation soil sample was collected from the produced water vessel(s) excavation, beneath the ground oil tank(s), and at the separator(s). At the wellhead, 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 collected 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, where applicable.

Soil samples were analyzed by a certified laboratory for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds in soil per COGCC Table 915-1, and EC, SAR, pH, and boron. All samples collected were analyzed by a certified laboratory using approved COGCC 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 will be collected and analyzed for all organic compounds per COGCC 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 ):

Pursuant to spill ID 483933, five soil borings (BH01-BH05) were advanced to delineate impacts identified at FS01@6' during the tank battery decommissioning. Soil samples were collected and analyzed for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds in soil, arsenic, lead, selenium, EC, SAR, pH, and boron. Groundwater was not encountered during this assessment.

Pursuant to spill ID 483387, five soil borings (BH06-BH10) were advanced to delineate impacts identified at WH-FS-01@5' during the tank battery decommissioning. Soil samples were collected and analyzed for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds in soil, arsenic, barium, cadmium, selenium, and pH. Groundwater was not encountered during this assessment.

A detailed summary of the sampling locations and analytical results can be found in the attached Site Investigation Report.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 33

Number of soil samples exceeding 915-1 27

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

Approximate areal extent (square feet) 100

### NA / ND

-- Highest concentration of TPH (mg/kg) 0.54

-- Highest concentration of SAR 2.04

BTEX > 915-1 No

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?

One background sample was collected from native soil near the wellhead during decommissioning. During the site assessment to delineate impacts associated with spill ID 483387, a total of ten background soil samples were collected from five discrete locations and analyzed for pH, arsenic, barium, cadmium, lead, and selenium.

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?

Soil boring sample locations BH06 and BH09 will be resampled to determine if barium should be considered a contaminant of concern. Concurrently with the resampling, additional background samples will be collected and analyzed for pH and barium, and background samples will be collected from a location outside of the influence of the former well pad. Due to the approaching planting season, this resampling and background sampling may need to be completed following the 2024 harvest. The ECMC will be updated quarterly on a Form 27 if the implementation schedule is changed due to the crop season.

## 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.

Pursuant to spill ID 483933, five soil borings (BH01-BH05) were advanced to total depths of 15 feet below ground surface (ft bgs) to delineate impacts identified at FS01@6' during the tank battery decommissioning. Soil samples were collected and analyzed for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds in soil, arsenic, lead, selenium, EC, SAR, pH, and boron. Groundwater was not encountered during this assessment. Pursuant to spill ID 483387, five soil borings (BH06-BH10) were advanced to 10 ft bgs to delineate impacts identified at WH-FS-01@5' during the tank battery decommissioning. Soil samples were collected and analyzed for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds in soil, arsenic, barium, cadmium, selenium, and pH. Groundwater was not encountered during this assessment.

Hydrocarbon compounds identified at waste characterization sample locations FS01@6' and WH-FS-01@5' were not replicated during site assessment activities, and were successfully delineated vertically and laterally. Based on the successful delineation and lack of groundwater observed within 15 feet of the ground surface, Noble proposes to apply ECMC Table 915-1 Residential Soil Screening Levels (RSSLs) to the site. If the ECMC approves this request Noble proposes to leave these impacts in place since there is no pathway for contaminant migration to the groundwater table at the site.

Justification to eliminate pH as a contaminant of concern was previously submitted under ECMC Form 27 document number 403631364. However, additional soil sampling will be conducted in accordance with the COAs issued on ECMC Form 27 document number 403631364. Next site actions are outlined in the Site Investigation Report and Operator Comments section of this 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.

Please refer to ECMC document number 403631364 for a detailed discussion of metals results at the site. Additional sampling will be conducted to eliminate barium as a contaminant of concern as outlined in the Site Investigation Report and Operator Comments section of this Form 27.

### 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.

# 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 Timeline Update

## 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 COGCC rules. Records are available on the COGCC'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? No

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 COGCC 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. 11/11/2022

Proposed date of completion of Reclamation. \_\_\_\_\_

## 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. 08/05/2020

Actual Spill or Release date, or date of discovery. 12/05/2022

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/11/2022

Proposed site investigation commencement. 03/01/2022

Proposed completion of site investigation. 01/30/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 01/30/2025

Proposed date of completion of Remediation. 01/30/2026

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:

'Proposed completion of site investigation' date is being updated to reflect the schedule to complete the supplemental site investigation. The ECMC will be updated on a subsequent Form 27 with the results of the supplemental site investigation, or if the schedule is changed due to site access constraints.

**OPERATOR COMMENT**

This Form 27 was originally submitted as a second quarter 2024 timeline update on April 10, 2024, and is being submitted as a third quarter 2024 timeline update to supplement ECMC Document Number 403631364 that was denied on March 13, 2024. In accordance with the COAs associated with denied Form 27 document number 403631364, Noble will return to the site and resample soil boring locations BH06 and BH09 for barium. While COA Number 2 on Form 27 document number 403631364 recommends re-digesting and re-analyzing the original samples collected on 11/07/2023, the laboratory does not retain sample volume longer than 90-days, which had lapsed as of the original date of the Form 27 denial (March 13, 2024), and samples will need to be recollected.

In accordance with COA Number 3 on Form 27 document number 403631364, Noble will return to the site to recollect background samples for barium and pH from locations outside of the influence of the original wellpad. Historical mapping will be used to determine the extent of the original wellpad prior to advancing the background locations. Due to the approaching planting season, this resampling and background sampling may need to be completed following the 2024 harvest. The ECMC will be updated quarterly on a Form 27 if the implementation schedule is changed due to the crop season.

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: 04/10/2024

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: Abdul Elnajdi

Date: 10/03/2024

Remediation Project Number: 21986

| <u>COA Type</u> | <u>Description</u> |
|-----------------|--------------------|
| 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.

| <u>Att Doc Num</u> | <u>Name</u>                    |
|--------------------|--------------------------------|
| 403749596          | FORM 27-SUPPLEMENTAL-SUBMITTED |

Total Attach: 1 Files

**General Comments**

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

Total: 0 comment(s)