

State of Colorado  
Energy & Carbon Management Commission

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Report taken by:  
Kilian Collins

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) 313-5582  
City: DENVER State: CO Zip: 80202 Mobile: ( )  
Contact Person: Jason Davidson Email: jason.davidson@chevron.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 28820 Initial Form 27 Document #: 403371436

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: LOCATION Facility ID: 447608 API #: County Name: WELD  
Facility Name: BOCKIUS 15-1,8, PFANNEBECKER Latitude: 40.312703 Longitude: -104.527565  
C14-32 D,C15-22  
\*\* correct Lat/Long if needed: Latitude: 40.312693 Longitude: -104.527923  
QtrQtr: SENE Sec: 15 Twp: 4N Range: 64W 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**

Aquatic Native Species Conservation Waters  
Intermittent Riverine Wetlands 90ft W (Box Elder Creek)  
No other potential receptors are located within 1/4 mile of the Site.  
Above distances are approximations.

**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	Undetermined	Lab analysis if encountered
Yes	SOILS	60'x60'x15'	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.

A site investigation will be conducted pursuant to COGCC Rule 911 at the BOCKIUS PFANNEBECKER T4N-R64W-S15 L01 Facility and Tank Battery 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 ):

Grab confirmation soil samples were collected from the produced water vessel(s) excavation, beneath the ground oil tank(s), and at the separator(s). Soil samples were analyzed by a certified laboratory for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons) organic compounds in soil per ECMC Table 915-1, and EC, SAR, pH, and boron. All samples collected were analyzed by a certified laboratory using approved ECMC laboratory analysis methods.

**Proposed Groundwater Sampling**

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

Groundwater was not encountered during the site investigation but was encountered during excavation of impacts observed during site reclamation activities. Subsequently and a grab groundwater was collected and analyzed for the full Table 915-1 groundwater analyte suite.

**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 tank battery area occurred during abandonment activities. Field personnel field screened all disturbed areas using a PID, visual, and olfactory senses to determine if laboratory confirmation sampling was required. The ECMC Tank Battery and Produced Water Vessel Closure Checklists were utilized and filled out during the abandonment process.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 3  
Number of soil samples exceeding 915-1 1  
Was the areal and vertical extent of soil contamination delineated? No  
Approximate areal extent (square feet) 3600

### NA / ND

ND Highest concentration of TPH (mg/kg) \_\_\_\_\_  
-- Highest concentration of SAR 2.21  
BTEX > 915-1 Yes  
Vertical Extent > 915-1 (in feet) 12

### Groundwater

Number of groundwater samples collected 1  
Was extent of groundwater contaminated delineated? No  
Depth to groundwater (below ground surface, in feet) 15  
Number of groundwater monitoring wells installed 0  
Number of groundwater samples exceeding 915-1 1

-- Highest concentration of Benzene (µg/l) 640  
ND Highest concentration of Toluene (µg/l) \_\_\_\_\_  
-- Highest concentration of Ethylbenzene (µg/l) 96  
-- Highest concentration of Xylene (µg/l) 61  
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?

Fifteen background samples were collected during the tank battery decommissioning event from an area not impacted by oil and gas development at similar depths and lithologies as confirmation samples collected at the location and analyzed for ECMC Table 915-1 metals and soil suitability for reclamation standards (pH, EC, SAR, and Boron). All samples failed the ECMC standards for As, Ba, Cd, and Pb. One sample ailed the ECMC standard for pH.

#### Background Soil Sample Analysis (mg/kg)

Arsenic 0.5 Ft: Max\*1.25 = 4.63  
Arsenic 4 Ft: Max\*1.25 = 4.73  
Arsenic 5 Ft: Max\*1.25 = 4.56  
Barium 0.5 Ft: Max\*1.25 = 203  
Barium 4 Ft: Max\*1.25 = 203  
Barium 5 Ft: Max\*1.25 = 366  
Cadmium 3 Ft: Max\*1.25 = 1.41  
Cadmium 3 Ft: Max\*1.25 = 1.20  
Cadmium 5 Ft: Max\*1.25 = 1.26  
Lead 0.5 Ft: Max\*1.25 = 52.3  
Lead 4 Ft: Max\*1.25 = 72.9  
Lead 5 Ft: Max\*1.25 = 69.8  
Selenium 0.5 Ft: Max\*1.25 = 0.325  
Selenium 4 Ft: Max\*1.25 = 0.325  
Selenium 5 Ft: Max\*1.25 = 0.325  
pH 4 Ft: Max = 8.59

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?

EC will be resampled at the DL01@4' sample location, pH will be resampled at the AST03@0.5' and PWV01-NW@4' sample locations, and As will be resampled at the PWV01-S@4' sample location.

## REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? Yes

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Impacted soil will be removed from the BOCKIUS 15-1,8, PFANNEBECKER C14-32 Tank Battery release area by excavation. The impacted soil will be disposed of at an approved landfill as non-hazardous waste in accordance with Rules 905 and 906. Copies of the waste manifests will be available upon request.

## 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.

On 1/16/2025, the potential presence of impacted material(s) was identified via hydrocarbon staining during reclamation activities at the Bockius 15-1,8, Pfannebecker C14-32 D, C15-22 tank battery, soil sample: WC01. The volume of potentially impacted material(s) is not currently known. Out of an abundance of caution, the operator is submitting notification within 24 hours of the discovery of the potential presence of impacted material(s) soil. Initial soil sampling is underway to determine whether any constituents are present at levels in excess of Table 915-1 standards. Groundwater was not encountered during decommissioning activities. The source is currently being excavated and confirmation soil samples are being collected and analyzed for the full Table 915-1 suite of analytes.

Groundwater was encountered during the preliminary excavation of impacted soil and a groundwater sample was collected for Table 915-1 organic and inorganic constituents in groundwater (Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), naphthalene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Chloride ion, Sulfate ion and Total Dissolved Solids (TDS).

Since groundwater impacts were observed, an NFA will be requested once four consecutive quarters of groundwater sampling have been completed and reported at the location with concentrations of Table 915-1 constituents below regulatory limits. As needed, soil and/or groundwater remediation plans will be developed and submitted to ECMC in a supplemental Form 27.

## Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation ( or enhanced bioremediation )	Yes	Excavate and offsite disposal
_____ Chemical oxidation		If Yes: Estimated Volume (Cubic Yards) _____ 2000
_____ Air sparge / Soil vapor extraction		Name of Licensed Disposal Facility or ECMC Facility ID # _____
_____ Natural Attenuation	Yes	Excavate and onsite remediation
_____ Other _____	No	Land Treatment
	No	Bioremediation (or enhanced bioremediation)
	No	Chemical oxidation
	No	Other _____

## Groundwater Remediation Summary

\_\_\_\_\_ No Bioremediation ( or enhanced bioremediation )

\_\_\_\_\_ No Chemical oxidation

\_\_\_\_\_ No 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.

Following excavation of impacted soil the Operator proposes to install soil borings that will be improved with temporary PVC monitoring wells. One monitoring well will be installed within the source area (if possible) and additional wells will be installed to monitor up-gradient, down-gradient, and cross-gradient groundwater conditions. Each soil boring location will have the soil type logged, will be field screened with a PID, and the interval with the highest PID measurement and/or the interval directly above groundwater will be collected and submitted for analysis of Table 915-1 constituents in soil. Quarterly groundwater monitoring will be conducted until four consecutive quarters of groundwater sampling have been completed and reported at the location with concentrations of Table 915-1 constituents below regulatory limits. Groundwater monitoring wells will be sampled and submitted to a laboratory for analysis of Table 915-1 groundwater constituents: Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), naphthalene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Chloride ion, Sulfate ion and Total Dissolved Solids (TDS).

# 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 Supplemental Form 27: F19 Closure Request to Consolidate Remediation to an F27

## 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: \$ 150000

## 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 2000

E&P waste (solid) description hydrocarbon impacted soil

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Buffalo Ridge Landfill, Keenesburg, CO

Volume of E&P Waste (liquid) in barrels 3190

E&P waste (liquid) description groundwater

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: NGL C6

# 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? No

Is additional groundwater monitoring to be conducted? Yes

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. 10/31/2025

Proposed date of completion of Reclamation. 10/31/2027

## 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. 03/29/2023

Actual Spill or Release date, or date of discovery. 01/16/2025

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/16/2023

Proposed site investigation commencement. 05/15/2023

Proposed completion of site investigation. 01/16/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 01/16/2025

Proposed date of completion of Remediation. 06/16/2026

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:

Additional resampling is needed to deny or delineate the presence of elevated inorganics and metals. Excavation is needed to remove soil impacts encountered during reclamation activities at the BOCKIUS 15-1,8, PFANNEBECKER C14-32 Tank Battery. Quarterly groundwater sampling is required for a minimum of four quarters to monitor impacts observed within the BOCKIUS 15-1,8, PFANNEBECKER C14-32 excavation.

## OPERATOR COMMENT

This form serves to continue all remediation and reporting related to the BOCKIUS 15-1,8, PFANNEBECKER C14-32 Tank Battery release under remediation number 28820 and request closure of Form 19 document number 403958572. The Operator will add the Spill ID number, following assignment by the ECMC, in the Site Information section on a supplemental Form 27 submittal

Pending ECMC approval, the Operator will complete the remedial activities at the site as outlined in this proposed Remedial Action workplan within the date range provided in the Remedial Action Dates section of the Implementation Schedule. Supplemental Form 27s will be prepared and submitted on a quarterly schedule to provide updates and progress of the remediation until closure criteria has been achieved.

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

Signed: Ethan Black

Title: Consultant

Submit Date: 02/24/2025

Email: ethanb@fremontenv.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: 28820

### COA Type

### Description

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
404090181	FORM 27 DENIED
404090494	OTHER
404090498	ANALYTICAL RESULTS
404090500	ANALYTICAL RESULTS
404090517	ANALYTICAL RESULTS
404399038	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 6 Files

### General Comments

User Group	Comment	Comment Date
Environmental	Operator included multiple data packets unrelated to the location assigned to this remediation project with no explanation. Operator shall resubmit and clarify site status and remedial plan.	10/21/2025

Total: 1 comment(s)