

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
403901265  
Receive Date:  
08/26/2024

Report taken by:  
Nick Cholas

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 Mobile: ( )  
Contact Person: Dan Peterson Email: RBUEUF27@chevron.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 30452 Initial Form 27 Document #: 403442185

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: WELL Facility ID: API #: 123-10994 County Name: WELD  
Facility Name: MARKUS 1 Latitude: 40.364880 Longitude: -104.670780  
\*\* correct Lat/Long if needed: Latitude: Longitude:  
QtrQtr: SESW Sec: 28 Twp: 5N Range: 65W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SW Most Sensitive Adjacent Land Use Grassland  
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? No

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

Riverine 0.11mi SW, 0.12mi SE, 0.24mi NW,  
Freshwater Emergent Wetland 0.02mi N, 0.13mi NW, 0.12mi W, 0.15mi/ 0.19mi SW

**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	Grab Groundwater Sampling
UNDETERMINED	SOILS	NA	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.

Pursuant to COGCC Rule 911 a site investigation will be conducted pertaining to the MARKUS 01 wellhead cut and cap and flowline removal. Approximately 253' of flowline will be removed, however a portion of the flowline will be abandoned-in-place due to field constraints. The COGCC will be updated in a supplemental Form 27. The wellhead will be cut and capped per COGCC rules. Additionally, soil samples will be field screened at the N-E-S-W sides of the wellhead. So as to not disturb the area of field constraint, soil samples will be taken at the start and endpoint of the flowline where the area exists. Soil samples will also be taken along the flowline any points of material change and/or hammer unions, directional changes, as well as at the bell holes on either side of a waterway. 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 ):

A grab soil sample will be 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 will be field screened at the N-E-S-W sides of the wellhead. Soil samples will be taken along the flowline 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. Soil samples will be 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 will be 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 and inorganic parameters (TDS, sulfate, chloride) 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 ):

[Empty box for surface water sampling details]

**Additional Investigative Actions**

Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

Visual inspection of the wellhead and flowline areas will occur during abandonment activities. Field personnel will field screen all disturbed areas using visual and olfactory senses to determine if laboratory confirmation sampling is required. The COGCC Flowline Closure and Wellhead Closure Checklists will be utilized and filled out during the abandonment process. A photolog will be submitted on the Subsequent Form 27.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 0

Number of soil samples exceeding 915-1           

Was the areal and vertical extent of soil contamination delineated?           

Approximate areal extent (square feet)           

### NA / ND

           Highest concentration of TPH (mg/kg)           

           Highest concentration of SAR           

BTEX > 915-1           

Vertical Extent > 915-1 (in feet)           

### Groundwater

Number of groundwater samples collected 1

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 2

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 1

ND Highest concentration of Benzene (µg/l)           

ND Highest concentration of Toluene (µg/l)           

ND Highest concentration of Ethylbenzene (µg/l)           

ND Highest concentration of Xylene (µg/l)           

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?

Pending crew availability, Noble plans to conduct confirmation soil sampling via hand auger as outlined in the initial Form 27, document number 403442185.

## 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.

No source was generated.

### 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.

NA

### Soil Remediation Summary

In Situ

Ex Situ

- \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )
- \_\_\_\_\_ Chemical oxidation
- \_\_\_\_\_ Air sparge / Soil vapor extraction
- \_\_\_\_\_ Natural Attenuation
- \_\_\_\_\_ Other \_\_\_\_\_

- \_\_\_\_\_ 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.

Groundwater was encountered at approximately 2 feet below ground surface (ft-bgs) during excavation of the wellhead for cut and cap activities, and one grab groundwater sample (GW01) was collected. Additional information is provided in the Operator Comments section.

# 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   Third Quarter 2024 - 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.

Operator anticipates the remaining cost for this project to be: \$ 15000

## 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? \_\_\_\_\_

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. 05/01/2025

Proposed date of completion of Reclamation. 04/30/2028

## 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. 04/18/2023

Actual Spill or Release date, or date of discovery. \_\_\_\_\_

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/30/2024

Proposed site investigation commencement. 04/30/2024

Proposed completion of site investigation. 10/31/2024

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 11/01/2024

Proposed date of completion of Remediation. 04/30/2025

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:

Site investigation dates have been updated based on the dates most recent field activities were completed.

## OPERATOR COMMENT

This form is being submitted as a third quarter timeline update for the Markus 01 Wellhead.

Facility decommissioning activities for the Markus 01 wellhead began on April 30, 2024. However, confirmation soil samples were unable to be collected at that time due to unsafe field conditions resulting from the high-water table and sidewalls caving into the excavation. Pending landowner approval and crew availability, plans to conduct confirmation soil sampling via hand auger as outlined in the approved initial Form 27 (document number 403442185) are expected to commence by the beginning of 4Q2024. The results of this environmental assessment will be summarized in a subsequent supplemental Form 27 submittal. Flowline decommissioning activities have commenced and will also be summarized in a subsequent supplemental Form 27 submittal as available.

Groundwater was encountered at approximately 2 ft-bgs during excavation of the wellhead during initial cut and cap activities. One grab groundwater sample (GW01) was collected and submitted to Origins for analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene by EPA Method 8260D, chloride and sulfate anions by IC 300.0 Method and total dissolved solids (TDS) by EPA Method 2540C. All analytical results for the groundwater sample submitted for analysis are compliant with their respective Table 915-1 Screening Levels except for TDS (860 mg/L). All organics were reported as below the laboratory method detection limits.

Sample location information is provided in Table 1 and Figure 1. Groundwater analytical results are summarized in Table 2 and Table 3. The laboratory analytical reports are also attached.

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

Signed: Chelsea Veryser

Title: Project Geologist

Submit Date: 08/26/2024

Email: chevronfr@entradainc.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: 30452

### 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
403901265	FORM 27 DENIED
403901277	ANALYTICAL RESULTS
403901297	ANALYTICAL RESULTS
403901298	SITE MAP
403990981	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 5 Files

### General Comments

User Group	Comment	Comment Date
Environmental	Laboratory analytical report indicates that soil samples were delivered to the laboratory without ice and outside of the required temperature preservation range. Therefore, Operator shall resample GW01.	11/12/2024

Total: 1 comment(s)