

State of Colorado  
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109

Document Number:

403923958

Receive Date:

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: RBUEUF27@chevron.com	Mobile: ( )

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 34728 Initial Form 27 Document #: 403690333

## 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 #: 123-18509	County Name: WELD
Facility Name: LEONARD 21-1614	Latitude: 40.293520	Longitude: -104.550350	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SESE	Sec: 21	Twp: 4N	Range: 64W
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? 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

Riverine 0.04mi E, 0.25mi SE  
Residential 0.23mi S  
Farm Structure 0.23mi SE

## 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	Lab analysis and field screening if encountered
Yes	SOILS	Refer to Tables and Figures	Lab analysis and field screening

### INITIAL ACTION SUMMARY

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

Pursuant to ECOM Rule 911 a site investigation was conducted pertaining to the LEONARD 21-1614 wellhead cut and cap and flowline removal. Approximately 177' of flowline was removed. The wellhead was cut and capped per ECOM rules. Additionally, soil samples were field screened at the N-E-S-W sides of the wellhead. Soil samples were 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. Due to field constraints, one directional change will be sampled at a future date. The ECOM will be updated with the results of the decommissioning sampling.

Please note that the flowline endpoint at the separator (SEP01-FL) was collected during decommissioning of the associated Novacek C28-27D Tank Battery, under remediation number 34704.

### 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 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 field screened at the N-E-S-W sides of the wellhead. Soil samples were taken at the flowline endpoints (FL01R-W, SEP01-FL) and along the flowline path where laboratory confirmation soil sampling was determined to be required (FL01-01 @ 2'). Soil samples were analyzed by a certified laboratory for the full extent of Table 915-1, including but not limited to: TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons) organic compounds in soil per ECOM Table 915-1, and EC, SAR, pH, metals, and boron. All samples collected were analyzed by a certified laboratory using approved ECOM 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 ECOM Table 915-1 and inorganic parameters (TDS, chloride, sulfate, sodium, potassium, bicarbonate, and carbonate (as CaCO<sub>3</sub>)).

#### 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 wellhead and flowline areas occurred during abandonment activities. Field personnel field screened all disturbed areas using visual and olfactory senses to determine if laboratory confirmation sampling was required. A detailed summary of decommissioning activities, including field notes, site photos, figures, and laboratory analytical results, is attached to this Form 27.

## SITE INVESTIGATION REPORT

## **SAMPLE SUMMARY**

### **Soil**

Number of soil samples collected 5  
Number of soil samples exceeding 915-1 5  
Was the areal and vertical extent of soil contamination delineated? No  
Approximate areal extent (square feet) 400

### **NA / ND**

-- Highest concentration of TPH (mg/kg) 66.31  
-- Highest concentration of SAR 2.19  
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 soil sample was collected near the flowline and analyzed for metals in soil per ECMC Table 915-1, pH, SAR, EC, and boron. The background soil sample was collected from a depth of 2 feet below ground surface (ft bgs).

Additionally, four background soil samples were collected near the associated Novacek C28-27D Tank Battery (Remediation number 34704) and analyzed for metals in soil per ECMC Table 915-1, pH, SAR, EC, and boron. The background soil samples were collected from depths ranging between 0-0.5 to 5 ft. bgs.

The maximum background concentration with a 1.25x multiplier applied for arsenic was calculated to be 3.48 mg/kg. All arsenic concentrations observed during decommissioning were below background levels. As such, Noble requests that arsenic should not be considered a contaminant of concern.

☐ 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?

A supplemental site investigation (SSI) will be completed to vertically and horizontally delineate the pH and EC exceedances observed during decommissioning. A proposed SSI map is attached to this Form 27. Based on the ECMC Table 915-1 exceedances identified during decommissioning, Noble proposes to limit future soil sampling to pH and EC. Concurrently with the SSI, additional background samples will be collected to determine if lead is attributed to native soil conditions at the site.

Additionally, one analytical soil sample will be collected at the directional change as shown on the proposed site investigation map (FL01-02) which will be collected for full Table 915-1 analysis. The proposed flowline sample location was selected based on the approved sampling map attached to the Form 27 Initial (ECMC Document #403690333). The SSI will be completed in accordance with the proposed implementation schedule, and the results of the SSI will be submitted on a subsequent Form 27.

## **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 impacted material caused by oil and gas operations was identified at this time.

## **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.

A supplemental site investigation (SSI) will be completed to vertically and horizontally delineate the pH and EC exceedances observed at FL01R-W@2', WH01 @6', FLR01@4', and FL01-01@2' during decommissioning, in accordance with the attached proposed site investigation map, and proposed sampling plan outlined in the Site Investigation Report section of this Form 27.

Soil Remediation Summary

☐ In Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

\_\_\_\_\_ Chemical oxidation

\_\_\_\_\_ Air sparge / Soil vapor extraction

\_\_\_\_\_ Natural Attenuation

\_\_\_\_\_ Other \_\_\_\_\_

☐ Ex Situ

\_\_\_\_\_ 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.

## 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 Decommissioning Sample Summary & Supplemental Site Investigation Proposal

### 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 (policies MWZZ316714 and MWZX316724) 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? 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 ECMC 1000 Series Rules.

Is the described reclamation complete? Yes \_\_\_\_\_

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. 06/12/2024

Proposed date of completion of Reclamation. 09/25/2026

## 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. 02/15/2024

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

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/12/2024

Proposed site investigation commencement. 09/25/2024

Proposed completion of site investigation. 03/25/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/25/2025

Proposed date of completion of Remediation. 03/25/2026

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:

The implementation schedule has been changed due to the decommissioning of the Leonard 21-1614 wellhead and flowline and necessity for supplemental site investigation activities adjacent to the wellhead and flowline. The proposed site investigation will be completed following the approval of this form, landowner negotiations, and crew availability.

**OPERATOR COMMENT**

This Form 27 is being submitted to include the decommissioning results at the former Leonard 21-1614 flowline location. A proposal to delineate the pH and EC exceedances identified during decommissioning (FL01R-W@2', WH01 @6', FLR01 @4', and FL01-01@2'), as well as to collect a sample at the directional change (FL01-02), is presented in the Site Investigation Report section of this Form 27.

Five background soil samples were collected near the flowline and analyzed for metals in soil per ECMC Table 915-1, pH, SAR, EC, and boron. The background soil samples were collected from a depth ranging between 0-0.5 to 5 feet below ground surface (ft bgs). The maximum background concentration with a 1.25x multiplier applied for arsenic was calculated to be 3.48 mg/kg. All arsenic concentrations observed during decommissioning were below background levels. As such, Noble requests that arsenic should not be considered a contaminant of concern.

Based on the ECMC Table 915-1 exceedances identified during decommissioning, Noble proposes to limit future soil sampling to pH and EC. The additional soil sample collected at the directional change as shown on the proposed site investigation map (FL01-02) which will be collected for full Table 915-1 analysis as per the approved sampling plan described on the Form 27 Initial Document number 403690333.

Concurrent with delineation activities, additional background samples will be collected to determine if lead observed at this location are indicative of native material conditions.

Quarterly reporting will be conducted until closure criteria are achieved for the remediation project. The results of the supplemental site investigation will be submitted on a subsequent Form 27.

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

Signed: Jake Whritenour

Title: Environmental Consultant

Submit Date: \_\_\_\_\_

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: \_\_\_\_\_

Date: \_\_\_\_\_

Remediation Project Number: 34728

**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**

403933747	OTHER
403933756	OTHER
403933763	SITE INVESTIGATION PLAN
403933776	ANALYTICAL RESULTS
403933777	ANALYTICAL RESULTS

Total Attach: 5 Files

**General Comments****User Group****Comment****Comment Date**

		Stamp Upon Approval
--	--	---------------------

Total: 0 comment(s)