

State of Colorado  
Energy & Carbon Management Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203

Phone: (303) 894-2100 Fax: (303) 894-2109



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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: (330) 597-6847
City: DENVER	State: CO	Zip: 80202
Contact Person: Phillip Porter	Email: RBUEUF27@chevron.co	Mobile: ( )

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 22292 Initial Form 27 Document #: 402969772

## 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: WELL	Facility ID: _____	API #: 123-13046	County Name: WELD
Facility Name: ROTH 12-30	Latitude: 40.455025	Longitude: -104.599906	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWSW	Sec: 30	Twp: 6N	Range: 64W
Meridian: 6	Sensitive Area? Yes		

  

Facility Type: SPILL OR RELEASE	Facility ID: 482049	API #: _____	County Name: WELD
Facility Name: Roth 12-30	Latitude: 40.455025	Longitude: -104.599906	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWSW	Sec: 30	Twp: 6N	Range: 64W
Meridian: 6	Sensitive Area? Yes		

## **SITE CONDITIONS**

General soil type - USCS Classifications SC

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**

Aquatic Native Species Conservation Waters 0.23 mi E  
Pond 0.13 mi NW  
Buildings 0.03 mi W, 0.21 mi 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
Yes	SOILS	8'x8'x6'	Lab analysis

### 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 ECMC Rule 911 a site investigation was conducted pertaining to the ROTH 12-30 wellhead cut and cap and flowline decommissioning. The wellhead was cut and capped per ECMC rules. Approximately 90' of flowline was removed per ECMC rules.

### 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 ):

Five (5) grab confirmation soil samples were collected at the wellhead excavation. 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, EC, SAR, pH, and boron. Based on field observations, all five samples were submitted for waste characterization of ECMC Table 915-1 metals. All samples collected were analyzed by a certified laboratory using approved ECMC laboratory analysis methods.

A soil sample was collected at the flowline connection to the former wellhead and submitted for lab analysis. A soil sample was previously collected from the flowline terminus at the separator under remediation project # 22298 in accordance with approved Form 27 Doc. # 402970775. Soil samples were analyzed by a certified laboratory using approved ECMC laboratory analysis methods in accordance with approved Form 27 Doc. # 403290303.

#### Proposed Groundwater Sampling

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

#### 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

NA / ND

Number of soil samples collected 7

Number of soil samples exceeding 915-1 4

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

Approximate areal extent (square feet) 65

-- Highest concentration of TPH (mg/kg) 55

-- Highest concentration of SAR 1.08

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 6

#### Groundwater

Number of groundwater samples collected 14

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 22

Number of groundwater monitoring wells installed 5

Number of groundwater samples exceeding 915-1 12

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?

A background sample for arsenic, barium, lead, and selenium analysis was collected during wellhead assessment activities. Five (5) additional backgrounds were collected during delineation activities for analysis of arsenic, barium, lead, and selenium. Elevated arsenic and barium concentrations in soil encountered during both assessment events are less than/consistent with background concentrations and do not warrant additional assessment.

☐ 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.

No source was generated. A site assessment was conducted to delineate impacted media observed at the wellhead and determine the applicability of GSSLs. Groundwater was encountered during delineation activities, so GSSLs appear to be applicable at this site. Five (5) soil borings were completed as monitoring wells and soil samples were collected for analysis of arsenic, barium, lead, and selenium. Five (5) background samples were collected for arsenic, barium, lead, and selenium to further compare residual metals at the site. Elevated arsenic and barium concentrations in soil were identified and are less than/consistent with background concentrations and, therefore, do not warrant additional assessment. Elevated concentrations of lead and selenium in soil were not identified during the delineation assessment. Lead and selenium in soil at this site do not appear to warrant further assessment or remediation at this time.

#### REMEDIAL 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 site assessment was completed to delineate impacted media observed at the wellhead and determine the applicability of GSSLs. Five (5) soil borings were completed as monitoring wells. Analytical results indicate that soils are in compliance with ECMC Table 915-1 GSSLs. Groundwater samples will be collected on a quarterly basis.

Laboratory analytical data show that concentrations of dissolved arsenic and barium in groundwater exceed CDPHE WQCC Regulation 41 Standards. With consideration to the naturally high abundance of metals in soil in Colorado, Noble proposes the installation of up-gradient, unimpacted background monitoring wells to establish a local background for dissolved arsenic, barium, lead, and selenium in groundwater.

During reconnaissance activities, all monitoring wells were observed to have been destroyed. A site assessment will be scheduled to replace the destroyed wells and resume quarterly sampling of all replacement wells. Elevation and gps data will also be collected during the well replacement event so as to establish approximate groundwater directional flow and determine inorganic background parameters in groundwater. NFA status will be considered when groundwater is in compliance with applicable ECMC Table 915-1 regulatory limits and/or CDPHE WQCC Regulation 41 Standards for four (4) consecutive quarters.

## **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

Yes \_\_\_\_\_ 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.

Five (5) replacement monitoring wells will be installed and sampled on a quarterly basis. Groundwater samples will be collected for analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene by EPA Method 8260, chloride and sulfate anions by EPA Method 300.0, total dissolved solids (TDS) by Method SM 2540C, and dissolved arsenic, dissolved barium, dissolved lead, and dissolved selenium by EPA Method 200.8. Additional sampling and a revised SAP will be submitted on a supplemental 27, as applicable.

## 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 Closure Data

### 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.

Operator anticipates the remaining cost for this project to be: \$ 25000

### 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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

Does Groundwater meet Table 915-1 standards? Yes

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? 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. 03/30/2022

Proposed date of completion of Reclamation. 03/31/2030

## 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. 01/25/2022

Actual Spill or Release date, or date of discovery. 04/21/2022

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/30/2022

Proposed site investigation commencement. 03/30/2022

Proposed completion of site investigation. 02/01/2023

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/30/2022

Proposed date of completion of Remediation. 03/31/2026

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:

Implementation schedule 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 is being submitted as a quarterly update.

Quarterly groundwater monitoring was conducted at five monitoring wells (MW-01 through MW-05) from Q4 2023 (October 2023) through Q2 2024 (April 2024). Groundwater samples were analyzed for BTEX, naphthalene, TMBs, chloride, sulfate, total dissolved solids, and dissolved metals. Monitoring reports are attached to this form, for reference.

All organic and inorganic compound concentrations have remained below ECMC Table 915-1 regulatory standards; however, dissolved metals analysis has shown consistent exceedances. In Q4 2023, dissolved arsenic exceeded CDPHE WQCC Regulation 41 Standards (0.01 mg/L) in three wells. Q1 2024 showed significantly elevated concentrations, with dissolved arsenic and dissolved barium exceeding standards in all wells. Results from Q2 2024 also showed arsenic concentrations in all wells above standards; however, MW-02 was reported destroyed.

Since Q3 2024, the five monitoring wells onsite have been recorded as inaccessible or destroyed. The monitoring well network will be replaced in Q1 2025 and sampling activities are planned to resume by Q2 2025 for the full list of Table 915-1 organic and inorganic compounds along with dissolved arsenic, dissolved barium, dissolved lead and dissolved selenium.

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

Signed: Abigail Sheehan

Title: Consultant

Submit Date:

Email: cvxform27@erm.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: 22292

**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**

404037218	SITE INVESTIGATION REPORT
404037236	MONITORING REPORT
404037239	SITE INVESTIGATION REPORT
404037240	SITE INVESTIGATION PLAN
404037643	REMEDATION PROGRESS REPORT
404037734	MONITORING REPORT

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)