

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
404277493

Receive Date:

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 20374 Initial Form 27 Document #: 402834079

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 #: 123-22848	County Name: WELD
Facility Name: HOWARD A 27-1	Latitude: 40.462710	Longitude: -104.529140	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENE	Sec: 27	Twp: 6N	Range: 64W Meridian: 6 Sensitive Area? Yes
Facility Type: SPILL OR RELEASE	Facility ID: 482091	API #: _____	County Name: WELD
Facility Name: Howard A27-1	Latitude: 40.462728	Longitude: -104.529151	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENE	Sec: 27	Twp: 6N	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**

Riverine 0.06 mi W

Freshwater Emergent Wetland 0.11 mi S, 0.15 mi NE

Dwellings 0.10 mi W, 0.12 mi SE

Buildings 0.08 mi SE

No other potential receptors are located within 1/4 mile of the Site.

Above distances are approximations.

# 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
Yes	SOILS	10' x 10' x 5' deep	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 ECMC Rule 911 a site investigation was conducted at the HOWARD A27-01 wellhead cut and cap and flowline removal due to impacts along the flowline adjacent to the wellhead.

## 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 soil borings were advanced with one completed as a monitoring well. Soil samples were analyzed by a certified laboratory for GBTEXN, TMBs, 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.

### Proposed Groundwater Sampling

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

One groundwater sample was collected and analyzed for organic compounds per ECMC 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 ):

Metals will be characterized during excavation activities.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

<b>Soil</b>	<b>NA / ND</b>
Number of soil samples collected <u>15</u>	ND Highest concentration of TPH (mg/kg) _____
Number of soil samples exceeding 915-1 <u>8</u>	-- Highest concentration of SAR <u>3.94</u>
Was the areal and vertical extent of soil contamination delineated? <u>Yes</u>	BTEX > 915-1 <u>No</u>

Approximate areal extent (square feet) 100

Vertical Extent > 915-1 (in feet) 5

**Groundwater**

Number of groundwater samples collected 1

ND Highest concentration of Benzene (µg/l) \_\_\_\_\_

Was extent of groundwater contaminated delineated? Yes

ND Highest concentration of Toluene (µg/l) \_\_\_\_\_

Depth to groundwater (below ground surface, in feet) 7

ND Highest concentration of Ethylbenzene (µg/l) \_\_\_\_\_

Number of groundwater monitoring wells installed 1

ND Highest concentration of Xylene (µg/l) \_\_\_\_\_

Number of groundwater samples exceeding 915-1 0

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?

Two background samples were collected from similar depths and lithologies as confirmation samples collected at the Howard A27-1 flowline location and analyzed for ECMC Table 915-1 metals and soil suitability for reclamation standards (pH, EC, SAR, and Boron). The background soil samples were reported with a naturally elevated concentration of arsenic.  
  
Five additional background samples, proposed on the attached, will be used to establish a site specific background indicative of soil impacted by oil and gas development, and provide further justification that metals concentrations in excavation soil samples either comply with Table 915-1 Cleanup Concentrations or are within 1.25 times site specific background.

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?

Five additional background samples, proposed on the attached of document number 403765920, will be collected from similar depths (4.5' and 5.5') and lithologies as the excavation samples and used to establish a site specific background indicative of soil impacted by oil and gas development, and provide further justification that metals concentrations in excavation soil samples either comply with Table 915-1 Cleanup Concentrations or are within 1.25 times site specific maximum background.

**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.

The source was excavated and the impacted soil was transported and disposed of at the North Weld Landfill in Weld County, Colorado.

**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.

As demonstrated by the analytical results that were reported from the soil sampling, petroleum impacted soil was removed from the Howard A27-1 flowline location by excavation. This was confirmed by analysis of soil samples collected from the sidewalls and the floor, which were reported with concentrations below the ECMC Table 915-1 PGSSLs for organic petroleum constituents upon completion of the excavation. Excavation details were provided in the attached of Doc. # 403665999.  
  
However, arsenic exceeded the ECMC Table 915-1 residential soil screening levels (RSSLs), and barium exceeded the Table 915-1 Protection of Groundwater Soil Screening Levels (PGSSLs). The operator has proposed five additional background samples, displayed on the attached of document number 403765920, to demonstrate elevated metals concentrations are attributable to native soil conditions.  
  
The Operators request to apply the ECMC RSSLs in consideration for a future NFA designation for soil sampling related to the Howard A27-1 wellhead was approved on document number 403963898. Groundwater was observed to be unimpacted and has received an NFA designation on Doc. # 403292650.  
  
Approximately 15 cubic yards of impacted soil were removed and transported to the landfill. The soil data are illustrated and summarized in Doc. # 403665999.

## Soil Remediation Summary

In Situ

Ex Situ

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

Yes \_\_\_\_\_ Excavate and offsite disposal

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

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 15

\_\_\_\_\_ 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.

Groundwater sampling was discontinued per approved form 403292650.

# 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 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 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? 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 15

E&P waste (solid) description Impacted soil - non hazardous

ECMC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-ECMC Disposal Facility: North Weld Landfill

Volume of E&P Waste (liquid) in barrels 0

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? No

Does the previous reply indicate consideration of background concentrations? \_\_\_\_\_

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? 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. 10/31/2025

Proposed date of completion of Reclamation. 06/30/2027

## 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. 08/04/2021

Actual Spill or Release date, or date of discovery. 04/27/2022

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 04/14/2022

Proposed site investigation commencement. 11/07/2021

Proposed completion of site investigation. 06/14/2022

### **REMEDIAL ACTION DATES**

Proposed start date of Remediation. 09/12/2022

Proposed date of completion of Remediation. 12/31/2025

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:

The operator is requesting additional time to commence remedial background collection activities. Remedial background collection activities will commence on or before the date specified in the "Proposed date of completion of Remediation" section.

**OPERATOR COMMENT**

This form serves to comply with the Rule 913.e. reporting schedule for the Howard A27-1 (REM # 20374). The Operator will complete the additional background characterization as outlined in this proposed Site Investigation Report workplan prior to the Proposed completion of site investigation date detailed in 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: Jeff Griggs

Title: Consultant

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

Email: jeffg@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: 20374

**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**

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Total Attach: 0 Files

**General Comments**

**User Group**

**Comment**

**Comment Date**

		Stamp Upon Approval
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Total: 0 comment(s)