

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
404274026

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 ECOM 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) 939-1929
City: DENVER State: CO Zip: 80202		Mobile: (970) 939-1929
Contact Person: Jason Davidson	Email: jason.davidson@chevron.com	

**PROJECT, PURPOSE & SITE INFORMATION**

**PROJECT INFORMATION**

Remediation Project #: 19598 Initial Form 27 Document #: 402771632

**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: SPILL OR RELEASE	Facility ID: 480186	API #: _____	County Name: WELD
Facility Name: Hayes Federal 31-8H5	Latitude: 40.357388	Longitude: -104.699701	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENE	Sec: 31	Twps: 5N	Range: 65W Meridian: 6 Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications CL Most Sensitive Adjacent Land Use Non-Cropland

Is domestic water well within 1/4 mile? Yes Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? Yes

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

Wetlands - 915' east  
Occupied building - 251' SE  
Household water well - Permit #224201 - 225' east  
Domestic water well - Permit # 34204 - 960' SE  
Livestock - 1500' ESE  
Platte River - 1870' NNW

# 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
No	GROUNDWATER	Not impacted	Lab analysis and Field Screening
Yes	SOILS	Refer to Tables and Figures	Lab analysis and Field Screening

## **INITIAL ACTION SUMMARY**

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

During reclamation of the Hayes Federal 31-8H5 location, historical impacts were discovered. The extent of the impacts was determined through an environmental assessment. Five initial grab soil samples were collected for Table 915-1 TPH and organics analysis in June 2021. These results were provided in Doc.#403780957. This initial investigation identified PAHs that exceeded the soil regulatory limits in sample SS-03 @ 0.5', and PAHs that exceeded the protection of groundwater regulatory limits at samples SS-02 @ 0.5' and SS-03 @ 0.5'. Ten additional soil samples were collected for Table 915-1 TPH, organics, and inorganics analysis during delineation activities in late June 2021. SB-05@0-2' was also analyzed for Table 915-1 metals for waste characterization. A background sample was collected for analysis of SAR, Arsenic, and Chromium (VI). In addition, two grab groundwater samples were collected from temporary monitoring wells for analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. These results were provided in Doc.#403997666. This additional sampling revealed exceedances of SAR at soil borings SB-02 @ 0-2', SB-04 @ 0-2', SB-07 @ 0-2' and SB-10 @ 0-2' and and PAHs that exceeded the protection of groundwater regulatory limits at samples SB-06 @ 0-2', SB-09 @ 0-2' and SB-10 @ 0-2'. No exceedances were identified in the groundwater samples collected from the site. Based upon these results, supplemental source mass removal (SSMR) via mechanical excavation was proposed in supplemental form 27 Doc.#403780957 and Doc.#404159977 to address the residual petroleum hydrocarbon and SAR soil and potential groundwater impacts identified at the Site.

## **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 ):

Confirmation soil samples will be collected from hand auger borings from the locations outside of the SSMR excavation, and grab samples will be collected from the base and sidewalls of the SSMR excavation. Post-excavation confirmatory samples will be collected from the excavation, one every 40 linear feet for sidewall, and one every 500 sq feet of floor. All samples will be field screened and analyzed for the full extend of Table 915-1 compounds. Background soil samples will be obtained in native, undisturbed areas sufficiently away from the operations boundary and investigation area impacted by oil and gas activity. Soil samples will be collected from similar depths and lithologic materials for comparison to delineation and confirmation soil sample results. Background samples will be analyzed for ECMC Table 915-1 SSR parameters and metals.

### **Proposed Groundwater Sampling**

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

If groundwater is encountered during supplemental site investigation and remediation activities, grab samples will be collected and analyzed for the full extent of 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 ):

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 16  
Number of soil samples exceeding 915-1 7  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 700

### NA / ND

ND Highest concentration of TPH (mg/kg) \_\_\_\_\_  
-- Highest concentration of SAR 10.6  
BTEX > 915-1 No  
Vertical Extent > 915-1 (in feet) 2

### Groundwater

Number of groundwater samples collected 2  
Was extent of groundwater contaminated delineated? No  
Depth to groundwater (below ground surface, in feet) 2  
Number of groundwater monitoring wells installed 2  
Number of groundwater samples exceeding 915-1 0

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?

Confirmation soil sampling is recommended to confirm the previous sampling results and to confirm completion of SSMR activities. Background samples will be collected to compare metals and SSR parameters to the confirmation soil sampling results.

## 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.

Operator will conduct supplemental source mass removal (SSMR) via mechanical excavation to address the residual petroleum hydrocarbon soil impacts identified at the site.

### REMEDICATION 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.

Excavation activities have continued to be delayed due to limited site accessibility due to wildlife, site saturation, and landowner consultation. Excavation activities are still tentatively scheduled to be completed by the end of 3Q25. An updated implementation schedule will be provided in a supplemental Form 27, as needed.

### 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 \_\_\_\_\_

## 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? 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.

Post-remediation, 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. 06/14/2021

Proposed date of completion of Reclamation. 10/31/2028

## 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. 06/19/2021

Actual Spill or Release date, or date of discovery. 06/18/2021

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/14/2021

Proposed site investigation commencement. 06/14/2021

Proposed completion of site investigation. 09/30/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/03/2024

Proposed date of completion of Remediation. 12/30/2026

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:

\_\_\_\_\_

**OPERATOR COMMENT**

This supplemental form 27 represents a 3Q25 update for the Hayes Federal 31-8H5 (REM 19598) release location. Based upon the results of previously reported investigation activities, supplemental source mass removal (SSMR) via mechanical excavation has been proposed to address the residual petroleum hydrocarbon and SAR soil and potential groundwater impacts identified at the Site. The Operator is in the process of scheduling SSMR activities, which are tentatively scheduled to be completed by the end of 3Q25.

Confirmation soil sampling is proposed to confirm the previous sampling results and to confirm completion of SSMR activities. Background samples will be collected to compare metals and SSR parameters to the confirmation soil sampling results.

Pursuant to Rule 913.e, quarterly reporting will continue for the location until data indicates no further action is warranted.

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

Signed: Michael LeFrancois \_\_\_\_\_

Title: Environmental Consultant \_\_\_\_\_

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

Email: michael.lefrancois@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: 19598 \_\_\_\_\_

**COA Type**

**Description**

<u>COA Type</u>	<u>Description</u>
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**

<u>Att Doc Num</u>	<u>Name</u>
404274249	SOIL SAMPLE LOCATION MAP

Total Attach: 1 Files

**General Comments**

**User Group**

**Comment**

**Comment Date**

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)