

State of Colorado  
Energy & Carbon Management Commission

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Document Number:

404140857

Receive Date:

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.

Report taken by:

OPERATOR INFORMATION

Name of Operator: NOBLE ENERGY INC	Operator No: 100322	<b>Phone Numbers</b>
Address: 1099 18TH STREET SUITE 1500		Phone: (970) 313-5582
City: DENVER State: CO Zip: 80202		Mobile: ( )
Contact Person: Jason Davidson	Email: jason.davidson@chevron.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 22536 Initial Form 27 Document #: 402990354

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 #: 123-26612	County Name: WELD
Facility Name: HANSEN O 1-23	Latitude: 40.339344	Longitude: -104.832572	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NESE	Sec: 1	Twtp: 4N	Range: 67W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SW Most Sensitive Adjacent Land Use Prairie 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

High Priority Habitat - Mule Deer Severe Winter Range  
Freshwater Emergent 0.15mi NE, 0.16mi NW, 0.21mi W, 0.23mi S, 0.16/0.18mi  
Riverine 0.21/0.23mi W, 0.23/0.24mi SE, 0.19mi S, 0.2/0.21mi SW  
Riparian Herbaceous 0.21mi SW, 0.23mi W  
Freshwater Forested/Shrub Wetland 0.22miW, 0.25mi NW, 0.21mi SW, 0.25mi SE  
Riparian Forested/Shrub 0.23mi W, 0.19/0.2/0.24mi SW, 0.13/0.17mi S, 0.21/0.23mi SE  
No other potential receptors are located within ¼ 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
UNDETERMINED	GROUNDWATER	NA	Lab analysis if encountered
Yes	SOILS	20x20x4' 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 will be conducted pertaining to the HANSEN O 01-23 wellhead cut and cap and flowline removal. Approximately 308' of flowline was removed. The ECMC will be updated in a supplemental Form 27 when the portion of flowline is abandoned-in-place due to field constraints is removed. The wellhead was cut and capped per ECMC rules. The Flowline Pre-Abandonment Notice Document number was previously 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 ):

Grab confirmation soil samples were collected 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, AS APPLICABLE to abandonment type. 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, and EC, SAR, pH, and boron. All samples collected were analyzed by a certified laboratory using approved ECMC laboratory analysis methods. A grab confirmation soil sample will be collected at the wellhead excavation in base of the excavation or the area showing the highest degree of impact during field screening activities at the wellhead excavation. The ECMC will be updated with the results of the wellhead decommissioning activities on a supplemental F27.

### **Proposed Groundwater Sampling**

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

Groundwater was not encountered during the site investigation.

### **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. The applicable ECMC Closure Checklists were utilized and filled out during the abandonment process.

# 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  
--          Highest concentration of SAR 2.46  
         BTEX > 915-1 No  
         Vertical Extent > 915-1 (in feet) 4

**Groundwater**

Number of groundwater samples collected 1  
Was extent of groundwater contaminated delineated? Yes  
Depth to groundwater (below ground surface, in feet) 5  
Number of groundwater monitoring wells installed 0  
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?

**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.

Impacted soil was removed from the release areas along the Hansen O 1-23 flowline by excavation. The impacted soil was disposed of at an approved landfill as non-hazardous waste in accordance with Rules 905 and 906. Copies of the waste manifests are available upon request.

**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 of impacted soil was undertaken to remove impacts observed four feet below ground surface at the FL01-01 and FL01-03 locations. Confirmation soil samples were collected and analyzed for ECMC Table 915-1 organic and Soil Suitability for Reclamation constituents (TPH, BTEX, 1,2,4 Trimethylbenzene, 1,3,5 Trimethylbenzene, Naphthalene, Polycyclic Aromatic Hydrocarbons [PAHs], pH, SAR, EC, and Boron) and ECMC Table 915-1 metals by a certified laboratory. Groundwater was discovered in one location (FL01-03) during excavation activities and was sampled for BTEX, 1,2,4 Trimethylbenzene, 1,3,5 Trimethylbenzene, Naphthalene. Groundwater was unimpacted and reported with "non-detect" concentrations of Table 915-1 organic constituents. The Operator proposes to install a temporary well to sample the GW01 sample location for Table 915-1 organics and inorganics.

Elevated concentrations of barium, and arsenic are proposed to be attributed to native soil conditions since concentrations of the elevated constituents (barium, and arsenic) observed in the local background samples are greater than concentrations observed in the excavation confirmation samples. Chromium analytical data for the FL01-01 and FL01-03 excavations were outsourced and analyzed by an unaccredited lab (Elevation Diagnostic). These chromium concentrations exceed the Table 915-1 PGSSLs but were less than the reporting limit (0.3 mg/kg) provided by Summit Scientific which is currently accepted as closure criteria. Since groundwater is unimpacted the Operator is requesting to apply the ECMC Table 915-1 Residential Soil Screening Levels as closure criteria.

Concentrations of pH at the (FL01-01) S01@4.0' sample location exceed the Table 915-1 soil suitability for reclamation standard and the local background concentrations. Soil will be resampled and analyzed for the full Table 915-1 suite of soil constituents at the same depth where the initial elevated pH concentrations were observed.

### Soil Remediation Summary

<input type="checkbox"/> In Situ	<input checked="" type="checkbox"/> Ex Situ
_____ Bioremediation ( or enhanced bioremediation )	Yes _____ Excavate and offsite disposal
_____ Chemical oxidation	_____ If Yes: Estimated Volume (Cubic Yards) _____ 65
_____ Air sparge / Soil vapor extraction	_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____
_____ Natural Attenuation	No _____ Excavate and onsite remediation
_____ Other _____	_____ Land Treatment
	_____ Bioremediation (or enhanced bioremediation)
	_____ Chemical oxidation
	_____ Other _____

### Groundwater Remediation Summary

No \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

No \_\_\_\_\_ Chemical oxidation

No \_\_\_\_\_ Air sparge / Soil vapor extraction

No \_\_\_\_\_ Natural Attenuation

No \_\_\_\_\_ 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.

One groundwater sample (GW01), collected from the floor of the FL01-03 excavation at 5.5 feet, was submitted to Summit Scientific, Inc. as well for the analyses of organic petroleum constituents' benzene, toluene, ethylbenzene, xylenes (BTEX), 1,2,4-trimethylbenzene;1,3,5-trimethylbenzene and naphthalene by EPA Method 8260B. The laboratory analysis indicates that the groundwater sample GW01 achieved the ECMC Table 915-1 standards for all organic petroleum constituents analyzed. A temporary well will be installed and sampled for the full Table 915-1 groundwater analyte suite including TDS, chloride, and sulfate not included in the analysis of the initial GW01 sample.

# 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 Supplemental Form 27: 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 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: \$ 60000

## 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 65

E&P waste (solid) description hydrocarbon impacted soil

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

Non-ECMC Disposal Facility: Buffalo Ridge Landfill, Keenesburg, CO

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. 08/05/2024

Proposed date of completion of Reclamation. 08/05/2027

## 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. 02/01/2022

Actual Spill or Release date, or date of discovery. 09/02/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/23/2023

Proposed site investigation commencement. 03/30/2022

Proposed completion of site investigation. 08/25/2023

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 08/22/2023

Proposed date of completion of Remediation. 08/05/2024

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 need to resample soil and groundwater excavation sample locations at the Hansen O 1-23 flowline excavation. The proposed resampling will be completed following the approval of this form.

**OPERATOR COMMENT**

Addressing Environmental User Group Comment on Doc. # 403921278:

ENV User Group Comment "ECMC has denied this form as Operator had attempted to redact the Chain of Custody on page 142 in order to hide a sample label "PWV Backfill" Operator shall submit a detailed explanation of what the sample was and why it was attempted to be redacted."

Operator Response: It was not the intent of the Operator to "hide" the (PWV) Backfill sample as evidenced by its inclusion in the tables included as part of the attached of Doc. # 403921278. The (PWV) Backfill sample was a data point collected as part of the produced water vault excavation at the facility and the results did not pertain to the Hansen O 1-23 flowline excavations. The consultant had requested the lab to remove the (PWV) Backfill sample and other PWV samples detailed on Pg. 3 of Lab Report 2402290R, for the purposes of clarity to display only data relating to the flowline excavation. The lab redacted the (PWV) Backfill sample and left the other PWV samples on the report. This error was not identified in the consultant's review of the excavation report and was submitted in error on Doc. # 403921278. A secured analytical data report is pending. Upon receipt of a secured report, analytical findings will be summarized and the unredacted version of the lab report in this submission provided.

Pending ECMC approval, the Operator will schedule and complete the site investigation as outlined in this proposed Site Investigation workplan within the date range provided in the Site Investigation Dates section of the Implementation Schedule. Supplemental Form 27s will be prepared and submitted quarterly.

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

Signed: Ethan Black

Title: Consultant

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

Email: ethanb@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: 22536

**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**

--	--

Total Attach: 0 Files

**General Comments**

**User Group**

**Comment**

**Comment Date**

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

Total: 0 comment(s)