

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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Document Number:

403717347

Receive Date:

03/21/2024

Report taken by:

Krystal Heibel

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 & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 21456 Initial Form 27 Document #: 402910092

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 #: 123-13275	County Name: WELD
Facility Name: LILLI UNIT 6-9	Latitude: 40.678970	Longitude: -103.870160	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 9	Twp: 8N	Range: 58W
Meridian: 6	Sensitive Area? Yes		

Facility Type: SPILL OR RELEASE	Facility ID: 482946	API #: _____	County Name: WELD
Facility Name: Lilli Unit 6-9	Latitude: 40.678931	Longitude: -103.870215	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 9	Twp: 8N	Range: 58W
Meridian: 6	Sensitive Area? Yes		

SITE CONDITIONS

General soil type - USCS Classifications SW _____

Most Sensitive Adjacent Land Use Range 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 - Aquatic Native Species Conservation Waters
Riverine 0.03mi W, 0.06mi S

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 or Field Screening, if encountered
UNDETERMINED	SOILS	10' X 10' X 3' BGS	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.

Pursuant to ECOM Rule 911 a site investigation was conducted pertaining to the LILLI UNIT 06-09 wellhead cut and cap and flowline abandonment. Approximately 1950' of flowline was abandoned-in-place and documented on Form 44 number 403078130. The wellhead was cut and capped per ECOM rules. The Flowline Pre-Abandonment Notice Document number was 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):

One (1) grab soil sample was collected at the base of the excavation during field screening activities 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 ECOM Table 915-1, and EC, SAR, pH, 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 and inorganic compounds per ECOM 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):

Visual inspection of the wellhead area 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 ECOM Wellhead Closure Checklist was utilized and filled out during the abandonment process. A photolog was submitted on the Subsequent Form 27. Additionally, during site reclamation an area of stained soil was observed on the western side of the former wellhead area. One (1) confirmation soil sample was collected on 9/14/2022 from the area of stained soils, which verified that TPH was present in soil above ECOM Table 915-1 Residential Soil Screening Levels. Following the confirmation of impacts at the site, a Form 19 was submitted to the ECOM, and spill number 482946 was issued for the site. On 9/29/2022, a remedial excavation was conducted to remove soils with hydrocarbon impacts above ECOM Table 915-1 standards.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 11

Number of soil samples exceeding 915-1 11

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

Approximate areal extent (square feet) 100

-- Highest concentration of TPH (mg/kg) 2980

-- Highest concentration of SAR 6.09

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 3

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?

On May 16, 2023 a total of 10 background samples were collected from 5 locations at depth intervals of 2-ft and 3-ft bgs to correlate with confirmatory sample depths and analyzed for arsenic, barium, lead, and selenium and SAR. The maximum background value for SAR is 57.3, which exceeds all excavation confirmatory values for SAR pursuant to spill/release ID 482946. As such, SAR should not be considered a contaminant of concern.

The maximum background concentrations for arsenic, barium, lead, and selenium with a 1.25 multiplier applied were calculated to be 1.54 mg/kg, 258 mg/kg, 15.4 mg/kg, and 1.16 mg/kg, respectively. All excavation confirmatory values for barium and selenium are below background levels, and should not be considered a contaminant of concern pursuant to spill/release ID 482946.

☐ 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 hand auger investigation of the abandoned-in-place flowline will be conducted at the flowline ends, direction changes and then every 250-ft in between, see the attached proposed soil sample location map. Soil samples will be analyzed by a certified laboratory for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds and metals in soil per ECMC Table 915-1, and EC, SAR, pH, and boron.

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.

The source was removed through a remedial excavation. Background soil samples were collected on 5/16/2023 and analyzed for arsenic, barium, lead, and selenium in soil and SAR. The results of the background sampling are attached to this Form 27.

Since groundwater was not encountered during the excavation activities, a desktop review was conducted of the Colorado division of water resources mapper. One permitted water well (permit ID 163306-) was identified within 0.5-miles of the site. According to the permit records, the static water level observed in the well is 20-ft bgs. Since all hydrocarbon impacts were removed during the remedial excavation, and since metals exceeding ECMC Table 915-1 GSSL standards are limited to 3-ft bgs, Noble is requesting to apply ECMC Table 915-1 RSSLs to the site. The application of ECMC Table 915-1 RSSLs eliminates lead above background levels as a contaminant of concern pursuant to spill/release ID 482946.

Additional background soil sampling will be performed to determine if arsenic should be considered a contaminant of concern pursuant to spill/release ID 482946. Additionally, an environmental investigation will be conducted to confirm the presence or absence of impacts adjacent to the flowline at a minimum of every 250', in accordance with the COA associated with ECMC document number 403494832. A proposed site investigation map is attached to this Form 27.

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.

A total of approximately 64 cubic yards of impacted material were removed for off-Site disposal at the Waste Management Landfill in Ault, Colorado undersigned Noble waste manifests. A total of approximately 58 cubic yards of imported clean fill was used to backfill the excavation. The final remedial excavation extent measured approximately 23 ft. by 25 ft. by 3 ft. bgs.

Soil Remediation Summary

<input type="checkbox"/> In Situ	<input checked="" type="checkbox"/> Ex Situ
<input type="checkbox"/> Bioremediation (or enhanced bioremediation)	Yes <input type="checkbox"/> Excavate and offsite disposal
<input type="checkbox"/> Chemical oxidation	<input type="checkbox"/> If Yes: Estimated Volume (Cubic Yards) <input type="text" value="64"/>
<input type="checkbox"/> Air sparge / Soil vapor extraction	<input type="checkbox"/> Name of Licensed Disposal Facility or ECMC Facility ID # <input type="text"/>
<input type="checkbox"/> Natural Attenuation	<input type="checkbox"/> Excavate and onsite remediation
<input type="checkbox"/> Other <input type="text"/>	<input type="checkbox"/> Land Treatment
	<input type="checkbox"/> Bioremediation (or enhanced bioremediation)
	<input type="checkbox"/> Chemical oxidation
	<input type="checkbox"/> Other <input type="text"/>

Groundwater Remediation Summary

<input type="checkbox"/> Bioremediation (or enhanced bioremediation)
<input type="checkbox"/> Chemical oxidation
<input type="checkbox"/> Air sparge / Soil vapor extraction
<input type="checkbox"/> Natural Attenuation
<input type="checkbox"/> Other <input type="text"/>

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 Site Investigation Report and 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 (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: \$ 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:

None

Volume of E&P Waste (solid) in cubic yards 64

E&P waste (solid) description Soil

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Waste Management Ault 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?

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? _____

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. _____

Proposed date of completion of Reclamation. _____

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. 11/15/2021

Actual Spill or Release date, or date of discovery. 09/15/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/01/2022

Proposed site investigation commencement. 09/12/2024

Proposed completion of site investigation. 03/12/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/12/2025

Proposed date of completion of Remediation. 06/12/2025

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 implementation schedule has been changed to address the COA on ECMC document #403494832 regarding investigation of the abandoned-in-place flowline.

OPERATOR COMMENT

This Form 27 is being submitted to include the results of the background sampling event completed for the Lilli Uni 6-9 wellhead, and to propose an additional hand auger investigation along the flowline. Refer to the site investigation report and remedial action plan sections of this Form 27 for a detailed summary of the background sampling event.

A hand auger investigation of the abandoned-in-place flowline will be conducted at the flowline ends, direction changes and then every 250-ft in between, see the attached proposed soil sample location map. Soil samples will be analyzed by a certified laboratory for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds and metals in soil per ECMC Table 915-1, and EC, SAR, pH, and boron.

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: Allan Engelhardt

Title: Environmental Consultant

Submit Date: 03/21/2024

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: Krystal Heibel

Date: 10/15/2024

Remediation Project Number: 21456

COA Type

Description

	Arsenic concentrations in confirmation soil samples exceed the Table 915-1 Residential Soil Screening Level Concentrations and are greater than 1.25 times the arsenic concentration in the background sample. Operator will provide additional data to characterize arsenic concentrations at the site and to determine its source in the next quarterly report.
	Operator shall collect confirmation soil samples as described in the Rule 915.e.(2) Guidance Document. Operator will analyze soil samples for TPH (C6-C36), Table 915-1 Organic Compounds in Soil, Table 915-1 metals, and Table 915-1 Soil Suitability for Reclamation (Electrical conductivity, Sodium adsorption ratio, and pH by saturated paste method, boron (hot water soluble)).
	Operators will collect and submit for laboratory analysis a soil sample collected from the areas most likely to have been impacted during the operational life of the flowline. These areas include, but are not limited to: where Flowlines connect to the wellhead, surface equipment, risers, valves, or manifolds; where Flowlines bend or were repaired in the past and at joints and hammer unions; where Flowlines connect to Flowlines or equipment of different material; and where Flowlines crossed drainages or surface water or are in contact with shallow groundwater. It appears the flowlines cross an intermittent stream. Additional soil samples shall be collected at each point where the flowline crosses the intermittent stream.
3 COAs	

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

403717347	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403918295	SITE INVESTIGATION PLAN
403918300	SITE INVESTIGATION REPORT
403958000	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 4 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	ECMC checked the box for "Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912."	10/15/2024

Total: 1 comment(s)