

State of Colorado Oil and Gas Conservation Commission

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Report taken by:

Kari Brown

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 COGCC 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: 2001 16TH STREET SUITE 900 | | Phone: (970) 3045329 |
| City: DENVER State: CO Zip: 80202 | | Mobile: () |
| Contact Person: Jacob Evans | Email: jacob.evans@chevron.com | |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 12591 Initial Form 27 Document #: 401946514

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: SPILL OR RELEASE | Facility ID: 459573 | API #: _____ | County Name: WELD |
| Facility Name: Edward Hemple Unit 1 | Latitude: 40.302039 | Longitude: -104.692251 | |
| ** correct Lat/Long if needed: Latitude: _____ | | Longitude: _____ | |
| QtrQtr: SWNW | Sec: 20 | Twp: 4N | Range: 65W Meridian: 6 Sensitive Area? Yes |
| Facility Type: SPILL OR RELEASE | Facility ID: 479280 | API #: _____ | County Name: WELD |
| Facility Name: Edward Hemple 1 | Latitude: 40.302293 | Longitude: -104.692823 | |
| ** correct Lat/Long if needed: Latitude: _____ | | Longitude: _____ | |
| QtrQtr: NWNW | Sec: 20 | Twp: 4N | Range: 65W Meridian: 6 Sensitive Area? Yes |

SITE CONDITIONS

General soil type - USCS Classifications OL

Most Sensitive Adjacent Land Use Crop Land

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

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 | GROUNDWATER | 150' X 150' | Laboratory Analysis |
| Yes | SOILS | 150' X 150' X 7' bgs | Laboratory 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.

The extent of impacts will be determined through excavation of impacted soil above COGCC Table 910-1 standards. A third party environmental consultant will collect confirmation soil samples and transport them to a certified laboratory under proper chain of custody procedures for analysis of TPH-DRO, TPH-GRO, BTEX, and Naphthalene.

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 samples were collected during site investigation activities by AECOM and submitted them to Summit Scientific for analysis of TPH-DRO, TPH-GRO, BTEX, and Naphthalene by EPA Methods

Proposed Groundwater Sampling

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

One grab groundwater sample was collected from the base of the excavation by Eagle Environmental and submitted to Origins Laboratory for analysis of BTEX by EPA Method 8260c.

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 5

Number of soil samples exceeding 915-1 4

NA / ND

-- Highest concentration of TPH (mg/kg) 3540

NA Highest concentration of SAR

Was the areal and vertical extent of soil contamination delineated? No

BTEX > 915-1 Yes

Approximate areal extent (square feet) 22500

Vertical Extent > 915-1 (in feet) 7

Groundwater

Number of groundwater samples collected 1

-- Highest concentration of Benzene (µg/l) 277

Was extent of groundwater contaminated delineated? Yes

-- Highest concentration of Toluene (µg/l) 765

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

-- Highest concentration of Ethylbenzene (µg/l) 66.3

Number of groundwater monitoring wells installed 0

-- Highest concentration of Xylene (µg/l) 907

Number of groundwater samples exceeding 915-1 1

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.

Limited source removal was completed from December 14, 2018 to June 10, 2019. Eagle Environmental collected grab confirmation soil samples above the phreatic zone to determine the lateral and vertical extent of impacts. Additionally, 30 cubic yards of impacted material was removed in January 2021 during lease road reclamation. Additional source removal will be scheduled pending landowner approval. A waste characterization sample was collected by Eagle Environmental (see attached report). Noble proposes a amended Table 915-1 soil sampling plan to include TPH C6-36, organics, arsenic, and barium during future source removal activities.

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.

Monitoring wells were installed during groundwater investigation activities. These wells will be sampled on a quarterly basis to monitor for natural attenuation. Contingent on additional source removal and monitored natural attenuation results for groundwater, an estimated no further action request may be submitted in November 2026.

Soil Remediation Summary

☐ In Situ

☒ Ex Situ

Bioremediation (or enhanced bioremediation)

Yes Excavate and offsite disposal

Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) 14980

Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or COGCC 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

Yes Natural Attenuation

Yes Other A groundwater amendment was placed at the base of the excavation to aid in groundwater remediation

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.

Noble proposes the following amended monitoring plan: MW-01, MW-02, MW-03R, MW-04 through MW-08, MW-09R, MW-10, MW-13, MW-14, MW-16, MW-20 through MW-24, MW-25R, MW-26, MW-27, MW-28, MW-32, MW-33, MW-35, MW-38 through MW-46, MW-47R, MW-48 through MW-59, MW-61, MW-62, MW-63R, MW-64 through MW-66, MW-68 through MW-74, MW-76 through MW-87, MW-91 through MW-93, RC-MW-01, RC-MW-02, and RC-MW-03. These wells will be sampled by Eagle Environmental on a quarterly basis and submitted to Origins Laboratory for analysis of BTEX, naphthalene, 1,3,5-trimethylbenzene, and 1,2,4- trimethylbenzene.

REMEDATION 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 _____

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 14980

E&P waste (solid) description E&P solid waste derived from excavation activities.

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Buffalo Ridge Landfill

Volume of E&P Waste (liquid) in barrels 1560

E&P waste (liquid) description E&P liquid waste derived from excavation activities.

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Republic Landfill

REMEDATION COMPLETION REPORT

REMEDATION 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? No _____

Is additional groundwater monitoring to be conducted? Yes _____

Operator shall comply with the COGCC 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 COGCC 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. 12/19/2018

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. 01/29/2021

Actual Spill or Release date, or date of discovery. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/04/2018

Proposed site investigation commencement. _____

Proposed completion of site investigation. 12/19/2018

REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/19/2018

Proposed date of completion of Remediation. 11/30/2026

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

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

Signed: Jacob Evans

Title: Environmental Specialist

Submit Date: 02/23/2022

Email: jacob.evans@chevron.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: Kari Brown

Date: 03/08/2022

Remediation Project Number: 12591

Condition of Approval

COA Type

Description

| | |
|--|--|
| | COGCC agrees to the reduced groundwater monitoring program. If future data indicate the need for additional site characterization or establishing point of compliance, COGCC may require additional monitoring wells be returned to the program. |
| | COGCC agrees to the amended sampling plan |

2 COAs

Attachment Check 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

| | |
|-----------|--------------------------------|
| 402963308 | FORM 27-SUPPLEMENTAL-SUBMITTED |
| 402963349 | MONITORING REPORT |

Total Attach: 2 Files

General Comments

User Group

Comment

Comment Date

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

Total: 0 comment(s)