

State of Colorado
Energy & Carbon Management Commission

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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 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: <u>NOBLE ENERGY INC</u>	Operator No: <u>100322</u>	Phone Numbers
Address: <u>1099 18TH STREET SUITE 1500</u>		Phone: <u>(970) 730-7281</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u>		Mobile: <u>()</u>
Contact Person: <u>Dan Peterson</u>	Email: <u>rbueuf27@chevron.com</u>	

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

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

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	NA / ND
Number of soil samples collected <u>315</u>	-- Highest concentration of TPH (mg/kg) <u>5829</u>
Number of soil samples exceeding 915-1 <u>115</u>	-- Highest concentration of SAR <u>6.17</u>

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

BTEX > 915-1 Yes

Approximate areal extent (square feet) 22500

Vertical Extent > 915-1 (in feet) 7

Groundwater

Number of groundwater samples collected 969

-- Highest concentration of Benzene (µg/l) 19800

Was extent of groundwater contaminated delineated? Yes

-- Highest concentration of Toluene (µg/l) 22900

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

-- Highest concentration of Ethylbenzene (µg/l) 903

Number of groundwater monitoring wells installed 96

-- Highest concentration of Xylene (µg/l) 15700

Number of groundwater samples exceeding 915-1 334

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 began at the site in February 2023 to remove residual impacts at the site. Per the approved workplan (Doc. #403298775), confirmation soil samples are/will be collected for compliance with ECMC Table 915-1 GSSLS for TPH C6-36, organics, arsenic, and barium during source removal activities.

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.

Ninety-six (96) monitoring wells were installed during groundwater investigation activities. Wells will be sampled on a quarterly basis to monitor for natural attenuation (see sampling plan proposal below). Source excavation activities resumed in February 2023 and are on-going at the site. Monitoring wells destroyed during excavation activities will be replaced, as needed. Based on the results of source removal and dissolved plume confirmation, AS/SVE remedial technology will be utilized to address any residual soil and groundwater impacts at the site. NFA will be considered when soil and groundwater are in compliance with ECMC Table 915-1 regulatory limits. 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) 24320

 Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or COGCC Facility ID # _____

Natural Attenuation
 Other _____

No Excavate and onsite remediation
 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 ammendment 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.

Per the approved monitoring plan (Doc. # 403298775), 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-55, MW-57, MW-58, MW-61, MW-62, MW-63R, MW-64 through MW-66, MW-68, MW-69, MW-71 through MW-74, MW-78 through MW-81, MW-83 through MW-87, RC-MW-01, RC-MW-02, and RC-MW-03 will be sampled. These wells will be sampled on a quarterly basis and submitted to Origins Laboratory for analysis of BTEX, naphthalene, 1,3,5-trimethylbenzene, and 1,2,4- trimethylbenzene.

During source excavation activities, monitoring activities will be completed on "on-plan wells", where applicable. Wells destroyed during excavation activities will be replaced, as needed, once source removal is complete.

Does Groundwater meet Table 915-1 standards? No

Is additional groundwater monitoring to be conducted? Yes

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? 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. 12/05/2018

SITE INVESTIGATION DATES

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

Proposed site investigation commencement. 12/04/2018

Proposed completion of site investigation. 10/14/2021

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

Per conversations between ECMC and Operator, please route review to ES Krystal Heibel

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

Signed: Andrew Newberry

Title: Environmental Consultant

Submit Date: 12/01/2023

Email: anewberry@eagle-enviro.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: 03/19/2024

Remediation Project Number: 12591

COA Type**Description**

	Operator will submit a minimum of one soil sample for the proposed laboratory analysis from each soil boring advanced during monitoring well installation. These samples shall be analyzed for full Table 915-1 analytes.
	Operator shall provide a photolog of the excavation activities and surface areas within the next form submittal.
	Operator shall sample all monitoring wells for each quarterly sampling event and submit the analytics within the quarterly form update. It appears several wells, including MW-29 and MW-30 which establish eastern delineation, were "not on plan" to be sampled for this last round of sampling.
	In accordance with Rule 914, if impacts are observed during monitoring well installation a step out monitoring well(s) shall be installed to define the horizontal extent of impacts to soil and groundwater and the monitoring wells shall be installed within 45 days of observations. Operator shall establish points of compliance by installing additional monitoring well(s) to the east of MW-02.
	ECMC does not approve this workplan as monitored natural attenuation in soil is not an acceptable remediation strategy. Operator shall propose a remediation plan with timeline within 45 days of approval of this form 27.
	Operator will analyze groundwater samples from all monitoring wells for Table 915-1 Groundwater Inorganic Parameters (total dissolved solids, chloride, sulfate) for a minimum of four quarterly monitoring events.
	Operator shall propose a plan with an associated timeline within 45 days of approval of this form 27 that indicates when monitoring well repair activities will take place. "As of May 23, 2023, 50 monitoring wells have been destroyed, and will require replacement following excavation activities."
	Operator shall field log soil borings during monitoring well installation for any future monitoring wells installed. Operator shall provide boring logs/well construction diagrams with the next monitoring report.
8 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**

403612183	FORM 27-SUPPLEMENTAL-SUBMITTED
403612207	REMEDATION PROGRESS REPORT

Total Attach: 3 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	Per Doc#403298775, ECMC agreed to the amended Table 915-1 soil sampling plan to include TPH C6-36, organics, arsenic, and barium during future source removal activities.	01/17/2024

Total: 1 comment(s)