

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Alexander Ahmadian

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: <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 #: 17187 Initial Form 27 Document #: 402622316

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>TANK BATTERY</u>	Facility ID: <u>305924</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>FOLEY-64N63W 5SENW</u>	Latitude: <u>40.342590</u>	Longitude: <u>-104.463900</u>	
	** correct Lat/Long if needed: Latitude: <u>40.345133</u>	Longitude: <u>-104.463757</u>	
QtrQtr: <u>SENW</u> Sec: <u>5</u> Twp: <u>4N</u> Range: <u>63W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

Facility Type: <u>TANK BATTERY</u>	Facility ID: <u>331533</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>SMITH-64N63W 5NENW</u>	Latitude: <u>40.345384</u>	Longitude: <u>-104.463392</u>	
	** correct Lat/Long if needed: Latitude: <u>40.345133</u>	Longitude: <u>-104.463757</u>	
QtrQtr: <u>NENW</u> Sec: <u>5</u> Twp: <u>4N</u> Range: <u>63W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

Facility Type: TANK BATTERY Facility ID: 331562 API #: County Name: WELD
Facility Name: CURD-64N63W 5SWNW Latitude: 40.345401 Longitude: -104.468884
** correct Lat/Long if needed: Latitude: 40.345133 Longitude: -104.463757
QtrQtr: SWNW Sec: 5 Twp: 4N Range: 63W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 481519 API #: County Name: WELD
Facility Name: Smith 12-2, Curd 12-5, Foley 22-5 Latitude: 40.345159 Longitude: -104.463751
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: NENW Sec: 5 Twp: 4N Range: 63W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SP Most Sensitive Adjacent Land Use Range 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? No

Other Potential Receptors within 1/4 mile

Residential/Farm Structures 0.04mi SE, 0.07mi N, 0.12mi NW

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	Laboratory Analysis if Encountered
Yes	SOILS	Refer to Tables and Figures	Laboratory 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.

A site investigation was conducted pursuant to ECMC Rule 911 during decommissioning activities at the Smith 21-12, Curd 12-5, Foley 22-5 Tank Battery location.

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):

Six (6) grab confirmation soil samples were collected from the produced water vessel excavation area, beneath the two above-ground oil tanks, and at the risers for the flowline and dump line of the separator. 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, EC, SAR, pH, and boron. Additionally, one soil sample (SEP01-DL01@3') was selected for waste characterization purposes and analyzed for metals in soil per ECMC Table 915-1. All samples collected were analyzed by a certified laboratory using approved ECMC laboratory analysis methods.

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 facility decommissioning or subsequent site assessment soil boring activities completed at this site.

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):

A Site Assessment was conducted on 4/28/2022 and 4/29/2022 to vertically and laterally delineate impacted media identified at samples SEP01-DL01@3', AST02@0.5', FS01@6', and SS03@2.5' during facility decommissioning activities. Ten (10) soil borings (BH01-BH10) were advanced in the area of impacts. Borings BH01 and BH06 were advanced adjacent to samples SEP01-DL01@3', or AST02@0.5', FS01@6', and SS03@2.5', respectively, to vertically delineate impacts. Borings BH02-BH05 and BH07-BH10 were advanced surrounding BH01 and BH06 to vertically and laterally delineate impacts. Soil samples were collected from each soil boring and analyzed for TPH (C6-C36), organic compounds in soil per ECMC Table 915-1, metals in soil per ECMC Table 915-1, pH, SAR, EC, and boron. Groundwater was not encountered during site assessment soil boring activities. One groundwater monitoring well was installed at boring BH01; however, the well was dry upon gauging and no groundwater sample was collected.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 47
Number of soil samples exceeding 915-1 24
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 300

NA / ND

-- Highest concentration of TPH (mg/kg) 166.3
-- Highest concentration of SAR 31.2
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 3

Groundwater

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

A total of sixteen (16) background soil samples were collected from six discrete locations (BG01 - BG06). The background soil samples were analyzed for metals in soil per ECMC Table 915-1, EC, SAR, pH, and boron. Arsenic, barium, selenium, and pH were observed in the background soil samples above ECMC Table 915-1 standards. Based on the uniform lithology across all soil sample depths and locations at the site (SP), the background results are comparable to all of the soil boring and excavation sample locations.

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.

The source was delineated through environmental site assessment activities completed on 4/28/2022 and 4/29/2022, and background soil sampling activities conducted on 11/8/2023. During the site assessment, a total of ten soil borings (BH01 - BH10) were advanced to terminal depths ranging from 10-18 feet below ground surface (ft bgs). Borings BH01 and BH06 were advanced adjacent to samples SEP01-DL01@3', or AST02@0.5', FS01@6', and SS03@2.5', respectively, to vertically delineate impacts. Borings BH02-BH05 and BH07-BH10 were advanced surrounding BH01 and BH06 to vertically and laterally delineate impacts. Soil samples were collected from each soil boring and analyzed for TPH (C6-C36), organic compounds in soil per ECMC Table 915-1, metals in soil per ECMC Table 915-1, pH, SAR, EC, and boron. Groundwater was not encountered during site assessment soil boring activities. One groundwater monitoring well was installed at boring BH01; however, the well was dry upon gauging and no groundwater sample was collected. The source material above ECMC Table 915-1 Groundwater Protection Soil Screening Level Concentrations (GSSLs) will be left in place, based on the prior ECMC-approval to apply the Table 915-1 Residential Soil Screening Level Concentrations (RSSLS) to this site (Document No. 403165057).

Based on the use of ECMC Table 915-1 RSSLS at this site, metals and organic compounds in soil have been eliminated as contaminants of concern. Based on the full delineation of the remaining inorganic soil impacts (pH, SAR, boron) above ECMC Table 915-1 standards and site-specific background levels, Noble proposes to generate a detailed reclamation plan to address the elevated pH, SAR, and boron at the site. The detailed reclamation plan will be submitted on a subsequent Form 27 prior to requesting a No Further Action (NFA) designation from the ECMC.

REMIEDIATION 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.

Soil impacts above ECMC Table 915-1 GSSLs were discovered during facility decommissioning activities and were subsequently delineated through environmental site assessment and background soil sampling activities. Groundwater was not encountered during the soil boring site assessment activities completed to a total depth of approximately 18 ft bgs. Additionally, a hard compacted layer was encountered at 18 ft bgs, resulting in drill rig refusal at soil boring BH01, and a monitoring well was set at 18 ft bgs. This monitoring well was gauged dry during the typical seasonal high groundwater period, and none of the other nine soil borings advanced during the site assessment encountered groundwater. As such, there is no evidence to suggest that a pathway for communication to groundwater is present in the area of facility decommissioning samples SEP01-DL01@3', AST02@0.5', FS01@6', and SS03@2.5', or elsewhere at the Site. As such, the ECMC has approved the application of the Table 915-1 RSSLs when evaluating the organic compounds and metals concentrations in soil at this location (Document No. 403165057).

Based on the use of ECMC Table 915-1 RSSLs at this site, metals and organic compounds in soil have been eliminated as contaminants of concern. Based on the full delineation of the remaining inorganic soil impacts (pH, SAR, boron) above ECMC Table 915-1 standards and site-specific background levels, Noble will generate a detailed site-specific reclamation plan pursuant to ECMC Rule 915.b, in order to address the remaining pH, SAR, and boron exceedances above ECMC Table 915-1 SSR standards.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____

_____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____

_____ Natural Attenuation

_____ Excavate and onsite remediation

_____ Other _____

_____ 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.

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 Background Site Assessment Data; 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: \$ 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: _____

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? 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. A detailed reclamation plan will be generated to address the elevated pH, SAR, and boron at the site.

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. 01/13/2022

Proposed date of completion of Reclamation. 08/07/2025

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. 01/12/2021

Actual Spill or Release date, or date of discovery. 01/28/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/08/2021

Proposed site investigation commencement. 01/13/2022

Proposed completion of site investigation. 11/08/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 11/08/2023

Proposed date of completion of Remediation. 08/07/2025

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 updated to reflect the completion facility decommissioning, site assessment, and background soil sampling activities at the former Smith 21-12, Curd 12-5, Foley 22-5 Tank Battery location, and the necessity for the generation of a detailed reclamation plan to address the elevated pH, SAR, and boron at the site, prior to requesting NFA.

OPERATOR COMMENT

This Form 27 is being re-submitted to provide the results of the Site Assessment and background soil sampling activities completed at the Smith 21-12, Curd 12-5, Foley 22-5 Tank Battery location. Analytical results indicate that hydrocarbon soil impacts above ECMC Table 915-1 GSSLs, and inorganic soil impacts (pH, SAR, boron) above ECMC Table 915-1 standards and site-specific background levels, were successfully delineated through soil boring sampling activities. Groundwater was not encountered during site assessment soil boring activities. One groundwater monitoring well was installed at boring BH01; however, the well was dry upon gauging and no groundwater sample was collected. Additionally, a hard compacted layer was encountered at 18 ft bgs. As such, there is no evidence to suggest that a pathway for communication to groundwater is present in the area of facility decommissioning samples SEP01-DL01@3', AST02@0.5', FS01@6', and SS03@2.5', or elsewhere at the Site. As such, the ECMC has approved the application of the Table 915-1 RSSLs when evaluating the organic compounds and metals concentrations in soil at this location (Document No. 403165057).

Since the elevated pH, SAR, and boron results observed at the site have been fully delineated, and these exceedances do not appear to be related to background conditions, Noble proposes to generate a detailed reclamation plan to address the elevated inorganic constituents remaining at the site. The detailed reclamation plan will be submitted on a subsequent Form 27 prior to requesting a No Further Action (NFA) designation from the ECMC.

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: 04/03/2024

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: Alexander Ahmadian

Date: 11/06/2024

Remediation Project Number: 17187

COA Type**Description**

	Boron is above RSSLs and site specific background; elevated boron cannot be left in situ and remediated with a Reclamation plan without an approved variance. Operator shall propose additional remediation, conduct background determination, or apply for a commission variance.
1 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**

403741580	FORM 27-SUPPLEMENTAL-SUBMITTED
403881084	SITE INVESTIGATION REPORT

Total Attach: 2 Files

General Comments**User Group****Comment****Comment Date**

		Stamp Upon Approval
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Total: 0 comment(s)