

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
404091293  
Receive Date:  
02/20/2025

Report taken by:  
Kyle Waggoner

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>	<b>Phone Numbers</b>
Address: <u>1099 18TH STREET SUITE 1500</u>		
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Dan Peterson</u>	Email: <u>danpeterson@chevron.com</u>	Phone: <u>(970) 730-7281</u>
		Mobile: <u>( )</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 20470 Initial Form 27 Document #: 402837667

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>LOCATION</u>	Facility ID: <u>323751</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>PETRIKIN-66N64W 34SENE</u>	Latitude: <u>40.444690</u>	Longitude: <u>-104.529190</u>	
	** correct Lat/Long if needed: Latitude: <u>40.446200</u>	Longitude: <u>-104.529691</u>	
QtrQtr: <u>SENE</u>	Sec: <u>34</u>	Twp: <u>6N</u>	Range: <u>64W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>481756</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Petrikin A34-8 Tank Battery</u>	Latitude: <u>40.446231</u>	Longitude: <u>-104.529526</u>	
	** correct Lat/Long if needed: Latitude: _____	Longitude: _____	
QtrQtr: <u>NESE</u>	Sec: <u>34</u>	Twp: <u>6N</u>	Range: <u>64W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

## SITE CONDITIONS

General soil type - USCS Classifications SW \_\_\_\_\_

Most Sensitive Adjacent Land Use Crop 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**

Industrial 0.05mi N  
Freshwater Emergent Wetlands 0.03mi W  
Riverine 0.03mi W, 0.13mi SW  
Residential 0.23mi NE

# 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	Refer to ECMC document #403904829	Laboratory analysis and field screening
Yes	SOILS	Refer to ECMC document #403904829	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 at the PETRIKIN T6N-R64W-S34 L04 Tank Battery location. Laboratory analytical indicated a historical release at the Petrikin A34-08 decommissioned tank battery.

## 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 ):

Seven confirmation soil samples were collected from the produced water vessel(s) excavation, beneath the ground oil tank(s), and at the separator (s). 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. Additionally, soil sample FS01@5' was analyzed for Table 915-1 metals.

### Proposed Groundwater Sampling

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

During the 03/28/2022 site investigation activities, soil boring FS01 was converted to a temporary groundwater monitoring well set at 14 ft bgs. The well was evaluated on 04/05/22 with an interface probe and a groundwater sample (FS01) was collected and analyzed for BTEX, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and inorganic parameters.

### 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 between 2/27/2023 and 4/15/2024 to delineate impacted media. Fifteen soil borings were advanced in the area of impacts. Soil boring FS01 was advanced at the same location as the waste characterization sample FS01@5' to vertically delineate impacts at that location. Soil borings FS02-FS05 and BH01-BH09R were advanced surrounding FS01 to vertically and laterally delineate impacts identified at FS01@5'. Soil samples were collected and analyzed for a combination of TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds in soil, metals in soil per ECMC Table 915-1, and EC, SAR, pH, and boron.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 8

NA Highest concentration of TPH (mg/kg) \_\_\_\_\_

Number of soil samples exceeding 915-1 1 -- Highest concentration of SAR 3.64  
 Was the areal and vertical extent of soil contamination delineated? No BTEX > 915-1 No  
 Approximate areal extent (square feet) 100 Vertical Extent > 915-1 (in feet) 12

**Groundwater**

Number of groundwater samples collected 1 ND Highest concentration of Benzene (µg/l) \_\_\_\_\_  
 Was extent of groundwater contaminated delineated? No ND Highest concentration of Toluene (µg/l) \_\_\_\_\_  
 Depth to groundwater (below ground surface, in feet) 14 ND Highest concentration of Ethylbenzene (µg/l) \_\_\_\_\_  
 Number of groundwater monitoring wells installed 1 ND Highest concentration of Xylene (µg/l) \_\_\_\_\_  
 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?

A total of 21 background samples were collected at the site between March 28, 2022 and April 15, 2024, analysis varied, but included pH, SAR, arsenic, barium, lead, and selenium. The maximum background concentrations of arsenic, barium, lead, and selenium with a 1.25x multiplier applied were calculated to be 11.1 milligrams per kilogram (mg/kg), 59.6 mg/kg, 15.8 mg/kg, and 1.86 mg/kg, respectively. The highest background levels for pH and SAR were observed to be 8.66 and 11.5, respectively. All arsenic, lead, and selenium concentrations observed in decommissioning and soil boring samples were observed to be less than background levels.

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 supplemental site investigation (SSI) will be completed to collect soil samples to analyze for the full ECOM table 915-1 contaminants of concern, including previously excluded Table 915-1 metals, EC, and boron at locations sampled during initial decommissioning (SEP01-DL01@3', AST01@0.5', and SS01-SS04@2.5') and previous site investigations (FS02-FS05@6.5' and BH06R-BH09R). A proposed soil boring location map is attached to this Form 27. Concurrently with the SSI, additional background samples will be collected and analyzed for full Table 915-1 metals, pH, SAR, EC, and boron to determine if elevated barium, pH, and SAR is attributed to native soil conditions at the site and to determine a baseline for concentrations of metals and inorganic contaminants in native soil conditions at the site. The SSI will be completed in accordance with the proposed implementation schedule, and the results of the SSI will be submitted on a subsequent Form 27.

Due to the presence of groundwater at 14-16 feet bgs at soil boring location FS01, four monitoring wells will be installed concurrently with SSI activities to a depth of 20 feet bgs to confirm the absence of impacts and establish points of compliance. Groundwater samples will be collected on a quarterly basis from each well and submitted for analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, total dissolved solids (TDS), chloride, sulfate, 1-M and 2-M.

**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.

Refer to the Remediation Summary section below.

**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.

On 03/28/2022, a supplemental site investigation (SSI) was conducted to delineate organic exceedances observed at soil sample location FS01@5' during decommissioning. Five soil borings were advanced in the area of impacts. FS01 was advanced at the same location as the waste characterization sample FS01@5' to vertically delineate impacts at that location. FS02-FS05 were advanced to the N-E-S-W of the source point to laterally delineate impacted soils. Soil samples were collected and analyzed for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds in soil, EC, SAR, pH, and boron. FS01 was additionally analyzed for metals in soil per ECMC Table 915-1.

On 02/27-28/2023, to delineate impacted media. Six soil borings were advanced in the area of impacts. BH01-BH04 were advanced at the same locations as the delineation soil borings FS02-FS05, respectively, to laterally delineate impacts identified at FS01@5'. Soil samples were collected and analyzed for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds in soil, metals in soil per ECMC Table 915-1, EC, SAR, pH, and boron. BH05 and BH06 were advanced to the west and south of the impacted area, respectively, to further laterally delineate organic and inorganic exceedances observed during initial decommissioning and supplemental site investigation activities.

On 04/15/2024, soil samples from borings BH06R-BH09R were collected and analyzed for pH and SAR to further laterally delineate inorganic exceedances observed during previous supplemental site investigations.

**Soil Remediation Summary**

<input type="checkbox"/> <b>In Situ</b>	<input type="checkbox"/> <b>Ex Situ</b>
_____ 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.

Groundwater was encountered during site investigation activities on 03/28/2022 and sampled on 04/02/2022. One groundwater samples (FS01) was collected and submitted for laboratory analysis of BTEX, naphthalene, TMBs, TDS, chloride, and sulfate. Analytical results indicated organic compounds were undetected, and an investigation of background inorganics in groundwater will be completed. Four monitoring wells will be installed during the proposed supplemental site investigation (SSI) at which time groundwater samples will be collected from each monitoring well and will be analyzed for BTEX, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, total dissolved solids (TDS), chloride, sulfate, 1-M, and 2-M. Each groundwater monitoring well will be sampled on a quarterly basis until four consecutive quarters of compliant results are achieved.

# 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 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? 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: \_\_\_\_\_

# 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? 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. 03/03/2022

Proposed date of completion of Reclamation. 02/18/2027

## 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. 03/15/2022

Actual Spill or Release date, or date of discovery. 03/14/2022

### SITE INVESTIGATION DATES

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

Proposed site investigation commencement. 02/18/2025

Proposed completion of site investigation. 06/18/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/18/2025

Proposed date of completion of Remediation. 01/18/2026

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:

'Proposed completion of site investigation' date is being updated to reflect the necessity to complete the supplemental site investigation (SSI). The SSI is tentatively schedule to be completed during the second quarter of 2025, pending the approval of this form. The ECMC will be updated on a subsequent Form 27 with the results of the supplemental site investigation.

**OPERATOR COMMENT**

This Form 27 is being submitted to propose additional supplemental site investigation at the Petrikin A34-08 Tank Battery location to collect soil samples to analyze for the full ECMC table 915-1 constituents of concern at locations sampled during initial decommissioning (SEP01-DL01@3', AST01@0.5', and SS01-SS04@2.5') and previous site investigations (FS02-FS05@6.5' and BH06R-BH09R). A proposed soil boring location map is attached to this Form 27. Concurrently with the SSI, additional background samples will be collected and analyzed for full Table 915-1 metals, pH, SAR, EC, and boron to determine if elevated barium, pH, and SAR is attributed to native soil conditions at the site and to determine a baseline for concentrations of metals and inorganic constituents in native soil conditions at the site. The SSI will be completed in accordance with the proposed implementation schedule, and the results of the SSI will be submitted on a subsequent Form 27. The SSI is tentatively schedule to be completed during the second quarter of 2025, pending the approval of this form.

Due to the presence of groundwater at 14-16 feet bgs at soil boring location FS01, four monitoring wells will be installed concurrently with SSI activities to a depth of 20 feet bgs to confirm the absence of impacts to groundwater and establish points of compliance. Groundwater samples will be collected on a quarterly basis from each well and submitted for analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, total dissolved solids (TDS), chloride, sulfate, 1-M and 2-M until closure criteria are reached for this site.

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: 02/20/2025

Email: Tas-chevron-3@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: Kyle Waggoner

Date: 03/05/2025

Remediation Project Number: 20470

**COA Type**

**Description**

	Operator will continue quarterly reporting until the site investigation is complete and Table 915-1 standards are met within the remediation area.
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**

404091293	FORM 27-SUPPLEMENTAL-SUBMITTED
404098604	SITE INVESTIGATION PLAN

Total Attach: 2 Files

**General Comments**

**User Group**

**Comment**

**Comment Date**

		Stamp Upon Approval
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Total: 0 comment(s)