

State of Colorado  
Energy & Carbon Management Commission

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11/07/2024

Report taken by:  
Taylor Robinson

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 37199 Initial Form 27 Document #: 403828854

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

No Multiple Facilities

Facility Type: LOCATION	Facility ID: 487353	API #: _____	County Name: WELD
Facility Name: ROACH BASS T5N-R67W-S14 L01 Loc	Latitude: 40.396606	Longitude: -104.860074	
** correct Lat/Long if needed: Latitude: 40.396521		Longitude: -104.860092	
QtrQtr: NWSE	Sec: 14	Twp: 5N	Range: 67W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SC Most Sensitive Adjacent Land Use Grassland  
Is domestic water well within 1/4 mile? No 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**

Aquatic Native Species Conservation Waters HPH 0.16mi S  
Freshwater Emergent Wetland 0.21mi S, 0.23mi NE  
Riverine 0.22mi S  
Commercial 0.22/0.24mi 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	Lab Analysis and Field Screening, if encountered
Yes	SOILS	Refer to Tables and Figures	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.

A site investigation was conducted pursuant to ECOM Rule 911 at the Roach Bass T5N-R67W-S14 L01 Facility and Tank Battery location. The tank battery was decommissioned on 10/21/24 and 10/22/24. Grab confirmation soil samples were collected from beneath the above ground storage tanks (AST01@0-6" - AST06@0-6"), at the produced water vessels excavations (PWV01-B@4' - PWV05-B@4', PWV01-N@2', PWV01-E@2', PWV02-S@2', PWV02-E@2', PWV03-N@2', PWV03-W@2', PWV04-W@2', PWV05-S@2', PWV05-W@2'), and at the risers for the flowlines and dumlplines of the separators (SEP01-FL@4' - SEP05-FL@4', SEP01-DL@4' - SEP05-DL@4'). In addition, the on-site dump lines located between the separator and tank battery were removed by pulling from either end. Field screening samples were collected at the meter houses (MH01@0-6" - MH04@0-6") and flares (FLARE01@0-6" - FLARE03@0-6"). All sampling was conducted in accordance with the Initial Form 27 (Document # 403828854).

## 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 ):

All sampling was conducted in accordance with the Initial Action Summary. Soil samples were analyzed by a certified laboratory for the full extent of Table 915-1, including but not limited to: TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons) organic compounds in soil per ECOM Table 915-1, and EC, SAR, pH, metals, 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; this sample analysis includes, but is not limited to BTEX, naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB by EPA Method 8260, chloride and sulfate anions by EPA Method 300.0, and total dissolved solids (TDS) by Method SM 2540C.

### 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 at the tank battery area occurred during abandonment activities. Field personnel field screened all disturbed areas using visual and olfactory senses. Additionally, discrete soil samples were collected from the base of the excavation and excavation sidewall in areas most likely to be impacted and exhibiting the highest field screened VOC concentration. A detailed summary of decommissioning activities, including field notes, site photos, figures, and laboratory analytical results, is attached to this Form 27.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

**Soil**

Number of soil samples collected 26  
Number of soil samples exceeding 915-1 26  
Was the areal and vertical extent of soil contamination delineated? No  
Approximate areal extent (square feet) 500

**NA / ND**

-- Highest concentration of TPH (mg/kg) 850  
-- Highest concentration of SAR 0.451  
BTEX > 915-1 Yes  
Vertical Extent > 915-1 (in feet) 4

**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 \_\_\_\_\_  
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?  
Three background soil samples were collected at one discrete location (BKG01) near the tank battery and analyzed for metals in soil per EMC Table 915-1, pH, SAR, EC, and boron. Background soil samples were collected from depths ranging between 0 to 4 feet below ground surface and the native lithology was noted to be similar to that observed in site samples. The maximum observed background concentration for pH was 7.50. The maximum background concentrations for arsenic and barium, with a 1.25x multiplier, were calculated to be 6.58 mg/kg and 169 mg/kg, respectively. All arsenic concentrations observed during decommissioning were below 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?  
Concurrently with the remedial excavation that is proposed in the Remedial Action Plan section of this Form 27, background soil samples will be collected to determine if pH and barium concentrations are attributed to native soil conditions at the site. Proposed background soil sample locations are shown on the attached proposed background sampling plan.

**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 benzene, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, TPH, benzo(a)anthracene, 1-methylnaphthalene (M), and 2-M exceedances observed at sample locations PWV04-B@4', AST04@0-6", AST06@0-6", SEP04-FL@4', and SEP03-FL@4' will be removed through remedial excavation. Remedial excavation confirmation soil samples will be collected and analyzed for full ECMC Table 915-1 constituents.

**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.  
Remedial excavation confirmation soil samples will be collected and analyzed for full ECMC Table 915-1 constituents. The results of the remedial excavation will be submitted on a subsequent Form 27.

**Soil Remediation Summary**

In Situ  Ex Situ  
\_\_\_\_\_ Bioremediation ( or enhanced bioremediation ) \_\_\_\_\_ Excavate and offsite disposal

Chemical oxidation  
 Air sparge / Soil vapor extraction  
 Natural Attenuation  
 Other \_\_\_\_\_

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_  
Name of Licensed Disposal Facility or ECMC Facility ID # \_\_\_\_\_  
 Excavate and onsite remediation  
 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.

# 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 Decommissioning Sample Summary and Source Mass Removal/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. 10/21/2024

Proposed date of completion of Reclamation. 05/08/2026

## 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. 05/09/2024

Actual Spill or Release date, or date of discovery. 10/30/2024

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/21/2024

Proposed site investigation commencement. 11/08/2024

Proposed completion of site investigation. 08/08/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 11/08/2024

Proposed date of completion of Remediation. 11/08/2025

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 due to the decommissioning of the Roach Bass T5N-R67W-S14 L01 Loc tank battery and necessity for remedial excavation activities adjacent to the tank battery. The remedial source mass removal is tentatively scheduled for the winter of 2024, and will be completed following the approval of this form, and/or landowner negotiations/crew availability.

**OPERATOR COMMENT**

This Form 27 is being submitted to include the decommissioning results and historic reportable release discovered at the Roach Bass T5N-R67W-S14 L01 Loc Tank Battery. A proposal to excavate the benzene, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, TPH, benzo(a)anthracene, 1-methylnaphthalene (M), and 2-M exceedances identified during decommissioning (soil samples PWV04-B@4', AST04@0-6", AST06@0-6", SEP04-FL@4', and SEP03-FL@4') is presented in the Remedial Action Plan section of this Form 27.

Three background soil samples were collected at one discrete location (BKG01) near the tank battery and analyzed for metals in soil per EMC Table 915 -1, pH, SAR, EC, and boron. Background soil samples were collected from depths ranging between 0 to 4 feet below ground surface and the native lithology was noted to be similar to that observed in site samples. The maximum observed background concentration for pH was 7.50. The maximum background concentrations for arsenic and barium, with a 1.25x multiplier, were calculated to be 6.58 mg/kg and 169 mg/kg, respectively. All arsenic concentrations observed during decommissioning were below background levels.

Noble requests to submit all soil samples for full analysis of ECMC Table 915-1 constituents. Concurrent with remedial excavation activities, additional background samples will be collected to determine if pH and barium observed at this location are indicative of native material conditions.

Quarterly reporting will be conducted until closure criteria are achieved for the remediation project. The results of the remedial excavation 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: Jake Whritenour

Title: Environmental Consultant

Submit Date: 11/07/2024

Email: tas-chevron-5@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: Taylor Robinson

Date: 01/03/2025

Remediation Project Number: 37199

**COA Type****Description**

0 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.

<b>Att Doc Num</b>	<b>Name</b>
403976496	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403984101	ANALYTICAL RESULTS
403984103	ANALYTICAL RESULTS
403984383	OTHER
404047314	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 5 Files

**General Comments**

<b>User Group</b>	<b>Comment</b>	<b>Comment Date</b>
		Stamp Upon Approval

Total: 0 comment(s)