FORM 27 Rev 5/22

State of Colorado
Energy & Carbon Management Commission

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Document Number: 404276287
Receive Date:
Report taken by:

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 INFORMATON

Name of Operator: NOBLE ENERGY INC Operator No: 100322
Address: 1099 18TH STREET SUITE 1500
City: DENVER State: CO Zip: 80202
Contact Person: Dan Peterson Email: danpeterson@chevron.com

Phone Numbers
Phone: (970) 730-7281
Mobile: ( )

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 32671 Initial Form 27 Document #: 403601786

PURPOSE INFORMATION

- [ ] Rule 913.c.(1): Pit or Cuttings Trench closure.
- [X] Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- [X] 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.
- [X] 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: LOCATION Facility ID: 317492 API #: County Name: WELD
Facility Name: DINNEL C27-29D Latitude: 40.292476 Longitude: -104.544049
** correct Lat/Long if needed: Latitude: 40.290914 Longitude: -104.543607
QtrQtr: SWSW Sec: 22 Twp: 4N Range: 64W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 487439 API #: County Name: WELD
Facility Name: Darlene Dinnel 1 Latitude: 40.290993 Longitude: -104.544075
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SWSW Sec: 22 Twp: 4N Range: 64W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications: SW

Most Sensitive Adjacent Land Use: Rangeland/Cropland

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? Yes

Other Potential Receptors within 1/4 mile

Emergent Wetland 45ft SW, 95ft S, 170ft SE, Emergent/Scrub Shrub Wetland 280ft/0.13mi SW, Earthern Ditch 45ft SW, 55ft SE, Concrete Ditch 80ft SE, Ephemeral Waterbody 185ft SE, Riverine 135ft S, 0.21mi SW, Gilmore Ditch 0.22mi SW, Lake/Pond 0.23mi NW
Residential Structure 0.12mi SE, 0.12/0.15/0.23mi NW
Farming Structure 0.14/0.14/0.15/0.17/0.17mi SE, 0.09/0.10/0.11/0.11/0.13/0.14/0.15mi NW, 0.10mi W, 0.24/0.24/0.24mi SW

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [X] **E&P Waste**
  - [X] Produced Water
  - [X] Oil
  - [X] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	Refer to Tables and Figures	Lab analysis and field screening
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 ECMC Rule 911 at the HERBST DARLENE DINNEL T4N-R64W-S22 L01 Facility and Tank Battery location.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

[X] Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

Grab confirmation soil samples were collected from the produced water vessel(s) excavation, beneath the ground oil tank(s), and at the risers for the flowline(s) and dumpline(s) of any separator(s). 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 ECMC Table 915-1, and EC, SAR, pH, metals, and boron. All samples collected were analyzed by a certified laboratory using approved ECMC laboratory analysis methods.

Proposed Groundwater Sampling

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

Groundwater was encountered at approximately 4.5 and 6 feet below ground surface during the site investigation on April 11, 2025, and two grab groundwater samples (GW01 and GW02) were collected and submitted for analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, chloride and sulfate anions, and total dissolved solids (TDS).

If groundwater is encountered during future site investigation activities, a grab groundwater sample will be collected and analyzed for all organic and inorganic parameters compounds per ECMC Table 915-1.

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 and field screening at the tank battery area occurred during abandonment activities. Field personnel field screened all disturbed areas using visual and olfactory senses to determine if laboratory confirmation sampling was required. The ECMC Tank Battery and Produced Water Vessel Closure Checklist was utilized and filled out during the abandonment process. A detailed summary of decommissioning activities, including field notes, site photos, figures, and laboratory analytical results, is attached to ECMC Document No. 404161684, which is in-process and pending approval at the time of this submittal.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected: 19

Number of soil samples exceeeding 915-1: 4

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

Approximate areal extent (square feet): 400

NA / ND

-- Highest concentration of TPH (mg/kg): 190

-- Highest concentration of SAR: 4.32

BTEX > 915-1: No

Vertical Extent > 915-1 (in feet): 7

Groundwater

Number of groundwater samples collected: 2

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet): 5

Number of groundwater monitoring wells installed: 0

Number of groundwater samples exceeding 915-1: 2

ND Highest concentration of Benzene (µg/l):

ND Highest concentration of Toluene (µg/l):

-- Highest concentration of Ethylbenzene (µg/l): 41

ND Highest concentration of Xylene (µg/l):

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?

[X] Were background samples collected as part of this site investigation?

On April 24, 2024, two background soil samples were collected form one discrete location (BKG01) at depths of approximately 3 feet and 4 feet bgs, and submitted for analysis of metals in soil per ECMC Table 915-1, pH, EC, SAR, and boron. The maximum background concentration for pH was observed to be 9.05. The maximum background concentrations with a 1.25x multiple applied for arsenic, barium, and lead were calculated to be 4.54 mg/kg, 138 mg/kg, and 10.2 mg/kg, respectively. Concentrations of pH, boron, arsenic, barium, cadmium, and lead observed in decommissioning and supplemental site investigation soil samples remain in exceedance of the applicable ECMC regulatory standards and above background levels.

[ ] Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards): Volume of liquid waste (barrels):

[X] Is further site investigation required?

Based on the results of decommissioning and supplemental site investigation (SSI) activities, a remedial excavation will be conducted to remove the hydrocarbon impacted material in the vicinity of soil samples SB02 and SB10. Soil samples will be collected from the base and sidewalls of the final excavation extent and submitted for analysis of the full ECMC Table 915-1 suite. Additionally, a supplemental site investigation will be conducted to collect additional background samples to further investigate native soil conditions on site. A proposed soil boring location map is attached to this Form 27.

Following the completion of excavation activities, a groundwater monitoring well network will be installed, and quarterly groundwater monitoring will be conducted until closure criteria are met.

Operator was informed by the laboratory that the sample holding times were exceeded for GBTEXN 8260B analyses for all April 11 and 17, 2025, SSI soil samples. Resampling will be completed at a later date.

REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? Yes

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Remedial excavation activities will be conducted to remove the hydrocarbon impacted material in the vicinity of supplemental site investigation (SSI) soil samples SB02@6'7' and SB10@5-6'.

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.

A SSI was conducted on April 11 and 17, 2025, to delineate the organic exceedances observed at PWV01-B@4' during decommissioning. Eleven soil borings were advanced in the vicinity of the impacted sample location at depths ranging from 3 -12 feet bgs, and submitted for analysis of the full ECMC Table 915-1 suite. SB01 was advanced in the same location as PWV01-B@4' to vertically delineate impacts. SB02-SB09 were advanced surrounding PWV01-B@4' to vertically and horizontally delineate impacts. Due to elevated PIDs observed at soil boring SB02, additional soil borings were advanced to the north (SB10) and west (SB11) to further delineate potential impacts at SB02. Groundwater was encountered at soil borings SB01 and SB02, and two groundwater samples were collected (GW01 and GW02, respectively).

The organic exceedances identified at decommissioning soil sample PWV01-B@4' were not replicated by resample location SB01@3-4'. However, organic compound concentrations were in exceedance of ECMC regulatory standards in soil samples SB02@6-7' and SB10@5-6'. Additionally, the 1,3,5-trimethylbenze concentration observed in groundwater sample GW02 was above the applicable ECMC regulatory standard.

Based on the results, remedial excavation activities will be conducted to remove the organic compound exceedances recorded in soil borings SB01 and SB02. Soil samples will be collected from the base and sidewalls of the final excavation extent and submitted for analysis of the full ECMC Table 915-1 suite.

Following remedial excavation activities, a groundwater monitoring (GWM) well network will be installed in the vicinity of soil samples PWV01-B@4' and SB02. Following GWM well installation activities and the return of first quarter GWM analytical results, a remediation strategy will be selected.

Operator was informed by the laboratory that the sample holding times were exceeded for GBTEXN 8260B analyses for all April 11 and 17, 2025, SSI soil samples. Resampling will be completed

Soil Remediation Summary

☐ **In Situ**

- _____ Bioremediation (or enhanced bioremediation)
- _____ Chemical oxidation
- _____ Air sparge / Soil vapor extraction
- _____ Natural Attenuation
- _____ Other _____

☐ **Ex Situ**

- _____ Excavate and offsite disposal
  - 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.

During April 2025 supplemental site investigation (SSI) activities, groundwater was encountered at soil borings SB01 and SB02, and two groundwater samples were collected (GW01 and GW02, respectively) for analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, chloride and sulfate anions, and total dissolved solids (TDS).

Analytical results indicated that the concentration of 1,3,5-TMB observed in groundwater sample GW02 was in exceedance of the ECMC Table 915-1 standard.

Due to the organic exceedances recorded in site soil samples and groundwater sample GW02, quarterly groundwater monitoring (GWM) will be conducted until closure criteria are met. Groundwater samples will be submitted for analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, chloride and sulfate anions, and total dissolved solids (TDS). A GWM well network will be installed following the completion of remedial excavation activities. TDS, and chloride and sulfate anion concentrations recorded in groundwater samples GW01 and GW02 will be compared to background concentrations following the installation of the above referenced groundwater monitoring network and the establishment of up-/cross-gradient monitoring wells.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

[X] 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

[X] Other SSIR; SSMRP and SSIP

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 MWZX316724) and financial assurance in compliance with ECMC rules. Records are available on the ECMC's website. 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?

[X] 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. 04/24/2024

Proposed date of completion of Reclamation. 01/13/2027

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. 08/18/2022

Actual Spill or Release date, or date of discovery. 06/13/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/24/2024

Proposed site investigation commencement. 07/11/2025

Proposed completion of site investigation. 09/11/2026

REMEDIAL ACTION DATES

Proposed start date of Remediation. 07/11/2025

Proposed date of completion of Remediation. 07/13/2026

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.

[X] Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

The implementation schedule is being updated to reflect the necessity for remedial excavation and supplemental site investigation (SSI) activities at the site. The remedial excavation and SSI activities will be completed following the approval of this Form 27.

OPERATOR COMMENT

This Form 27 is being submitted to summarize the April 2025 supplemental site investigation (SSI) activities at the Darlene Dinnel 1 tank battery location.

ECMC Document Number 404161684 was submitted on April 16, 2025, as a replacement form for previously denied ECMC Document Numbers 403928958 and 404141247. ECMC Document Number 404161684 is in-process and pending approval at the time of this Form submittal.

A SSI was conducted on April 11 and 17, 2025, to delineate the organic exceedances observed at PWV01-B@4' during decommissioning. Eleven soil borings were advanced in the vicinity of the impacted sample location at depths ranging from 3 -12 feet bgs, and submitted for analysis of the full ECMC Table 915-1 suite. SB01 was advanced in the same location as PWV01-B@4' to vertically delineate impacts. SB02-SB09 were advanced surrounding PWV01-B@4' to vertically and horizontally delineate impacts. Due to elevated PIDs observed at soil boring SB02, additional soil borings were advanced to the north (SB10) and west (SB11) to further delineate potential impacts at SB02. Groundwater was encountered at soil borings SB01 and SB02, and two groundwater samples were collected (GW01 and GW02, respectively).

The organic exceedances identified at decommissioning soil sample PWV01-B@4' were not replicated by resample location SB01@3-4'. However, organic compound concentrations were in exceedance of ECMC regulatory standards in soil samples SB02@6-7' and SB10@5-6'. Additionally, the 1,3,5-trimethylbenze concentration observed in groundwater sample GW02 was above the applicable ECMC regulatory standard.

Based on the results, remedial excavation activities will be conducted to remove the organic compound exceedances recorded in soil borings SB01 and SB02. Soil samples will be collected from the base and sidewalls of the final excavation extent and submitted for analysis of the full ECMC Table 915-1 suite.

Following remedial excavation activities, a groundwater monitoring (GWM) well network will be installed in the vicinity of soil samples PWV01-B@4' and SB02. Following GWM well installation activities and the return of first quarter GWM analytical results, a remediation strategy will be selected.

Operator was informed by the laboratory that the sample holding times were exceeded for GBTEXN 8260B analyses for all April 11 and 17, 2025, SSI soil samples.

Because not all analytes would be outside of holding times, the lab ran the samples for the full Table 915-1 suite.

The full laboratory report (Report) is being transmitted to ECMC for transparency. The Report's case narrative identifies which constituents were run outside of the required holding times. The Report's note column also identifies the impacted constituents. Operator will not be relying on any results associated with a constituent that was outside of the required holding time. Operator will be collecting replacement samples and will be submitting them for analysis. Operator will submit the replacement sample laboratory report in a future supplemental Form 27.

Additionally, samples SB02@11-12' and SB10@9-10' (Lab Report Work Order #2504225) showed evidence of carry-over during initial 8260 analysis, and were consequently re-run out of hold-time. The results of the initial analyses (also run out of hold-time) are listed in the attached analytical tables.

Pursuant to Rule 913.e, Supplemental Form 27s will be submitted on a quarterly schedule to provide updates and progress of the remediation until closure criteria is met.

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

Signed: Jimmy Webster Title: Environmental Consultant

Submit Date: Email: jwebster@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: Date:

Remediation Project Number: 32671

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.

Att Doc Num	Name
404276891	LABORATORY ANALYTICAL REPORT
404276894	LABORATORY ANALYTICAL REPORT
404278132	SITE INVESTIGATION PLAN
404278191	SITE INVESTIGATION REPORT

Total Attach: 4 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)