

State of Colorado
Energy & Carbon Management Commission

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Document Number:
404282935
Receive Date:
07/20/2025

Report taken by:
Nick Cholas

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 23578 Initial Form 27 Document #: 403079506

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: WELL	Facility ID: _____	API #: 123-20597	County Name: WELD
Facility Name: KERBS K 20-6	Latitude: 40.298960	Longitude: -104.804510	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 20	Twp: 4N	Range: 66W Meridian: 6 Sensitive Area? No
Facility Type: SPILL OR RELEASE	Facility ID: 487244	API #: _____	County Name: WELD
Facility Name: Kerbs K20-06	Latitude: 40.298967	Longitude: -104.805220	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 20	Twp: 4N	Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SW _____

Most Sensitive Adjacent Land Use crop _____

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

HPH: no, residence ~0.25 mi SW, no surface waters
No other potential receptors are located within 1/4 mile of the Site.
Above distances are approximations.

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	Field Screening and Lab 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.

Pursuant to ECMC Rule 911 a site investigation was conducted pertaining to the KERBS K20-06 flowline removal. Approximately 718' of flowline was removed. Additionally, soil samples were collected at any points of material change and/or hammer unions, directional changes, as well as at the bell holes on either side of a waterway, AS APPLICABLE to abandonment type. The wellhead was previously cut and capped per ECMC rules.

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):

A grab soil sample was collected at the base of the excavation or the area showing the highest degree of impact during field screening activities. Additionally, soil samples were collected at any points of material change and/or hammer unions, directional changes, as well as at the bell holes on either side of a waterway. 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. 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):

If groundwater is encountered during the site investigation a grab groundwater will be collected and analyzed for full Table 915-1 organic and inorganic constituents in groundwater (Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), naphthalene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Chloride ion, Sulfate ion and Total Dissolved Solids (TDS).

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 along the flowline and at the wellhead and separator areas occurred during abandonment activities. Field personnel field screened all disturbed areas using a PID, visual, and olfactory senses to determine if laboratory confirmation sampling was required. The applicable ECMC Closure Checklists were utilized and filled out during the abandonment process. A photolog was attached.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 6

ND Highest concentration of TPH (mg/kg) _____

Number of soil samples exceeding 915-1 2 -- Highest concentration of SAR 3.12

Was the areal and vertical extent of soil contamination delineated? No BTEX > 915-1 No

Approximate areal extent (square feet) 200 Vertical Extent > 915-1 (in feet) 2

Groundwater

Number of groundwater samples collected 0 Highest concentration of Benzene (µg/l) _____

Was extent of groundwater contaminated delineated? Yes Highest concentration of Toluene (µg/l) _____

Depth to groundwater (below ground surface, in feet) _____ Highest concentration of Ethylbenzene (µg/l) _____

Number of groundwater monitoring wells installed _____ Highest concentration of Xylene (µg/l) _____

Number of groundwater samples exceeding 915-1 _____ 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?

Four background soil samples were collected from an area not impacted by oil and gas development and at similar depths and lithologies as confirmation soil samples collected at the location and analyzed for Table 915-1 metals and SSR constituents. Background soil sample analytical results were reported with elevated levels of Arsenic (As) and Barium (Ba).

Background Soil Sample Analysis (mg/kg)
Total As: Max*1.25 = 3.81
Total Ba: Max*1.25 = 108

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?

Elevated concentrations of lead and nickel were detected at two discrete locations during the former Kerbs K 20-6 flowline FL01 - 2FT remedial excavation. Soil samples will be resampled and analyzed for the full Table 915-1 analyte suite at the S Wall - 2ft and E Wall - 2ft locations, at the same depth where the initial elevated lead and nickel levels were observed. Additional local background samples will also be collected to support this effort. Noble will request a No Further Action (NFA) determination if the reanalyzed samples meet the Table 915-1 concentration standards. Background samples will be utilized to assess whether elevated concentrations are consistent with native soil conditions.

Alternatively, if the resampled results exceed Table 915-1 standards and elevated concentrations cannot be attributed to natural soil background levels, a minimum of five additional samples will be collected to delineate the extent and magnitude of the contamination.

Noble will then evaluate remedial alternatives to address any in situ elevated metal concentrations that are not attributable to background conditions and exceed the applicable Table 915-1 standards.

Please refer to the attached Site Investigation Plan for the proposed resample locations and additional background sampling points.

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 organic compound exceedances observed at sample locations FL01 - 2ft were removed through a remedial excavation. Remedial excavation confirmation soil samples were collected and analyzed for full ECMC Table 915-1 constituents. The impacted soil was disposed of at an approved landfill as non-hazardous waste in accordance with Rules 905 and 906. Copies of the waste manifests are available upon request.

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.

Laboratory analytical results indicated a historical release at the FL01 - 2ft soil sample location, which was documented as a historic release under Form 19, Document No. 403843595.

To address contamination identified at two feet below ground surface (bgs), impacted soil was excavated, with remedial excavation activities completed on March 24, 2025. Following the excavation, confirmation soil samples were collected and analyzed for constituents listed in ECMC Table 915-1, including both organic parameters and soil suitability indicators for reclamation. Analytes included Total Petroleum Hydrocarbons (TPH), BTEX, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Naphthalene, Polycyclic Aromatic Hydrocarbons (PAHs), pH, Sodium Adsorption Ratio (SAR), Electrical Conductivity (EC), Boron, and Table 915-1 metals. Groundwater was not encountered during excavation.

Analytical results confirmed that all organic petroleum-related constituents and inorganic parameters met the applicable ECMC Protection of Groundwater Soil Screening Levels (PGSSLs) and soil suitability standards for reclamation.

Elevated concentrations of arsenic and barium were observed in both excavation and background samples. Due to similar exceedances in adjacent native soil, these constituents are proposed to be naturally occurring. This determination is supported by evaluating arsenic and barium concentrations against 1.25 times the maximum values detected in local background samples.

Regarding PGSSL exceedances for lead and nickel, Noble proposes to resample the original sidewall locations (S Wall – 2ft and E Wall – 2ft) at the same depths where the initial exceedances were detected. These resamples will be analyzed for the full ECMC Table 915-1 analyte suite.

For additional information regarding the proposed remedial actions and sample locations, please refer to the Site Investigation Report work plan.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 10

_____ Air sparge / Soil vapor extraction

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

_____ Natural Attenuation

No _____ Excavate and onsite remediation

_____ Other _____

_____ Land Treatment

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Other _____

Groundwater Remediation Summary

No _____ 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.

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

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 Remedial Excavation Results Submittal & 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 MWZZ316714 and MWZX316724) 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? Yes

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

No beneficial use

Volume of E&P Waste (solid) in cubic yards 10

E&P waste (solid) description Hydrocarbon impacted soil

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: Buffalo Ridge Landfill in Keenesburg, Colorado

Volume of E&P Waste (liquid) in barrels 0

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? 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.

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. 10/31/2025

Proposed date of completion of Reclamation. 06/30/2027

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. 07/02/2024

Actual Spill or Release date, or date of discovery. 07/02/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/07/2024

Proposed site investigation commencement. 06/20/2022

Proposed completion of site investigation. 12/31/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 07/16/2024

Proposed date of completion of Remediation. 03/24/2025

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 "Proposed date of completion of Remediation" section has been updated to reflect the actual date of completion of remedial excavation activities and the "Proposed completion of site investigation" section has been updated due to the necessity for supplemental site investigation activities adjacent to the former Kerbs K 20-6 flowline. The proposed site investigation will be completed following the approval of this form.

OPERATOR COMMENT

This Form 27 is being submitted for the former Kerbs K 20-6 flowline location to provide updated remedial excavation results and to propose a supplemental site investigation.

Remedial excavation at the impacted FL01 - 2ft sample location was completed on March 24, 2025. The excavation measured approximately 10'x10'x3' deep.

Post-excavation analytical results confirmed that all organic petroleum-related constituents and inorganic parameters met the applicable Colorado ECMC Protection of Groundwater Soil Screening Levels and soil suitability standards for reclamation.

Elevated concentrations of arsenic and barium were observed in both excavation and background samples. Because similar concentrations were identified in adjacent native soil, these constituents are considered to be naturally occurring. This conclusion is supported by a comparison against 1.25 times the maximum values detected in local background samples.

The Operator proposes a supplemental site investigation to resample lead and nickel exceedances observed at the S Wall - 2ft and E Wall - 2ft sidewall sample locations. These locations will be resampled at the same depth where the exceedances were initially identified. Samples will be analyzed for the full ECMC Table 915-1 analyte suite to confirm the presence or absence of elevated lead and nickel concentrations. If results from the resampling comply with Table 915-1 concentration standards, Noble will request a No Further Action (NFA) determination. Background samples will be used to support justification of any elevated concentrations.

Alternatively, if resampling results indicate exceedances that cannot be attributed to native background soil conditions, a minimum of five additional delineation samples will be collected to define the extent and magnitude of contamination.

Noble will then evaluate appropriate remedial alternatives to address any in situ elevated metal concentrations that exceed Table 915-1 standards and are not consistent with background levels.

Additional local background samples will also be collected as part of this investigation to further characterize native soil conditions and provide context for evaluating site-specific analytical results.

Please refer to the proposed Site Investigation Report work plan and the attached Site Investigation Plan for detailed sampling locations and methodology. The Operator will complete the proposed supplemental site investigation activities as outlined upon approval of this Form 27.

Quarterly reporting will continue until remediation project closure criteria are met. Results of the supplemental site investigation will be submitted with a subsequent Form 27 upon completion of field activities.

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

Signed: Ethan Black

Title: Consultant

Submit Date: 07/20/2025

Email: ethanb@fremontenv.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: Nick Cholas

Date: 08/14/2025

Remediation Project Number: 23578

COA Type

Description

	Attachment Doc #404283187 states: "Certification by Pace Analytical Services, LLC is invalid." Operator shall explain on Supplemental Form 27.
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

404282935	FORM 27-SUPPLEMENTAL-SUBMITTED
404283187	LABORATORY ANALYTICAL REPORT
404283390	SITE INVESTIGATION PLAN
404283445	REMEDATION PROGRESS REPORT

Total Attach: 4 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	<p>Operator states: "The Operator proposes a supplemental site investigation to resample lead and nickel exceedances observed at the S Wall - 2ft and E Wall - 2ft sidewall sample locations. These locations will be resampled at the same depth where the exceedances were initially identified. Samples will be analyzed for the full ECMC Table 915-1 analyte suite to confirm the presence or absence of elevated lead and nickel concentrations. "</p> <p>ECMC approves the proposed soil boring locations. Depending on the results of the current site investigation plan, Operator may be required to complete additional soil borings to fully delineate soil impacts.</p>	08/14/2025

Total: 1 comment(s)