

State of Colorado
Energy & Carbon Management Commission

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Document Number:
404040956
Receive Date:
12/27/2024

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 ECOM is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27. This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

Name of Operator: <u>NOBLE ENERGY INC</u>	Operator No: <u>100322</u>	Phone Numbers
Address: <u>1099 18TH STREET SUITE 1500</u>		Phone: <u>(970) 313-5582</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u>		Mobile: <u>()</u>
Contact Person: <u>Jason Davidson</u>	Email: <u>jason.davidson@chevron.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 29932 Initial Form 27 Document #: 403438217

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>WELL</u>	Facility ID: _____	API #: <u>123-30547</u>	County Name: <u>WELD</u>
Facility Name: <u>FIVE RIVERS USX K 09-21D</u>	Latitude: <u>40.329219</u>	Longitude: <u>-104.787754</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SENW</u>	Sec: <u>9</u>	Twp: <u>4N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>486717</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Five Rivers K09-21D</u>	Latitude: <u>40.325211</u>	Longitude: <u>-104.790912</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWNW</u>	Sec: <u>9</u>	Twp: <u>4N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>486718</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Five Rivers K09-21D</u>	Latitude: <u>40.325036</u>	Longitude: <u>-104.791097</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWNW</u>	Sec: <u>9</u>	Twp: <u>4N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>486719</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Five Rivers K09-21D</u>	Latitude: <u>40.324921</u>	Longitude: <u>-104.791418</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWNW</u>	Sec: <u>9</u>	Twp: <u>4N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>486825</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Five Rivers K09-21D</u>	Latitude: <u>40.329192</u>	Longitude: <u>-104.787756</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWNW</u>	Sec: <u>9</u>	Twp: <u>4N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications SW Most Sensitive Adjacent Land Use Cropland

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

- Well within Mule Deer Migration Corridor HPH
- Well Within Mule Deer Severe Winter Range HPH
- Well Within Aquatic Native Species Conservation Water HPH
- Well Within Bald Eagle Active Nest Site 0.50mi Buffer HPH
- Well Within Bald Eagle Active Nest Site 0.25mi Buffer HPH
- Bald Eagle Roost Site HPH 0.03mi W
- Riverine 0.12mi E, 0.04mi/ 0.09mi N, 0.1mi/ 0.15mi NE, 0.22mi/ 0.23mi NW
- Freshwater Emergent Wetland 0.21mi NW, 0.24mi S
- Freshwater Pond 0.06mi S, 0.15mi W
- Freshwater Forested/Shrub Wetland 0.09mi NE, 0.23mi NW
- Herbaceous Riparian 0.12mi NW
- Forested/Shrub Riparian 0.21mi W, 0.02mi/ 0.09mi N, 0.15mi 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
Yes	GROUNDWATER	Refer to Tables and Figures	Field Screening and Lab 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 Five Rivers USX K09-21D wellhead cut and cap and flowline removal. The wellhead was cut and capped per ECMC rules on 01/08/24. A grab soil sample was collected at the base of the excavation (WH-FS-01@6') and soil samples were field screened at the N-E-S-W sidewalls of the wellhead excavation (WH-SS-01@5' - WH-SS-04@5'. Additional screening samples were collected from the surficial soils outside the wellhead excavation in each cardinal direction (WH-N@0.5' - WH-W@0.5').

The flowline was fully removed (approximately 1563' in length) on 03/21/24 per Form 44 # 403770365. Confirmation soil samples were collected from beneath the flowline riser at the wellhead (FL01-A@3'), as well as 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 (FL01-D, G - J, and L - N). Field screening samples were also collected along the flowline as needed (FL01-F & FL01K). The Five Rivers USX K09-21D flowline was in a common trench with the Five Rivers K09-07D, K09-18D, & K09-19 flowlines. The flowline riser at the separator was sampled during the decommissioning of the Five Rivers K09-67-1HN Pad location (REM # 30784) and is being reported under that remediation number.

Concentrations of 1,3,5-trimethylbenzene (TMB), naphthalene, benzo(a)anthracene, benzo(a)pyrene, dibenzo(a,h)anthracene, fluorine, 1-methylnaphthalene (M), and 2-M exceeding ECMC Table 915-1 regulatory standards were observed at sample locations FL01-A, D, H - J, and L - N. As proposed under ECMC Form 27 Document Number 403772452, which was submitted for the Five Rivers K09-07D (REM# 29936), the sources identified at FL01-J, I, H, D, and C will be removed through a remedial excavation managed under REM# 29936. Additionally, the soil analytical report for sample locations FL01-D, E, F, and H - K were submitted under Form 27 # 403772452.

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):

Soil samples were collected as described in the Initial Action Summary section of this report. Sampling deviated from the sampling plan in the Initial Form 27 because the line was supposed to be partially abandoned in place. However, the entire flowline was removed during decommissioning activities. Samples will be analyzed by a certified laboratory for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons) organic compounds in soil per ECMC Table 915-1, EC, SAR, pH, boron, and metals. All samples collected will be analyzed by a certified laboratory using approved ECMC laboratory analysis methods.

Proposed Groundwater Sampling

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

Groundwater was encountered during the excavation activities following the initial decommissioning. A grab groundwater was collected where encountered (FL01-L@3', FL01-N@4', and FL01-M@3') and analyzed for all organic and inorganic compounds per ECMC 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 of the wellhead and flowline areas occurred during abandonment activities. Field personnel screened all disturbed areas using visual and olfactory senses to determine if laboratory confirmation sampling was required. A detailed summary of the wellhead decommissioning activities, including an ECMC Wellhead Closure Checklist, site photos, figures, and laboratory analytical results, was submitted as an attachment to Form 27 # 403785499. A detailed summary of the flowline decommissioning activities, including an ECMC Flowline Closure Checklist, site photos, figures, and laboratory analytical results, was also submitted as an attachment to Form 27 # 403785499.

The soil analytical report for sample locations FL01-D, E, F, and H - K were submitted under Form 27 # 403772452.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil	NA / ND
Number of soil samples collected <u>36</u>	-- Highest concentration of TPH (mg/kg) <u>1.3</u>
Number of soil samples exceeding 915-1 <u>35</u>	-- Highest concentration of SAR <u>2.02</u>
Was the areal and vertical extent of soil contamination delineated? <u>No</u>	BTEX > 915-1 <u>No</u>
Approximate areal extent (square feet) <u>100</u>	Vertical Extent > 915-1 (in feet) <u>9</u>
Groundwater	
Number of groundwater samples collected <u>3</u>	-- Highest concentration of Benzene (µg/l) <u>3.6</u>
Was extent of groundwater contaminated delineated? <u>No</u>	-- Highest concentration of Toluene (µg/l) <u>3</u>
Depth to groundwater (below ground surface, in feet) <u>3</u>	-- Highest concentration of Ethylbenzene (µg/l) <u>17</u>
Number of groundwater monitoring wells installed <u>0</u>	-- Highest concentration of Xylene (µg/l) <u>130</u>

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 8 background samples were collected from four discrete locations and analyzed for arsenic, barium, lead, and pH. Background samples were collected from between 2' and 6' below ground surface. The lithology between the site samples and background locations were observed to be generally poorly to well graded sands. The maximum background concentration of pH was observed to be 9.18, and the maximum background concentration of arsenic, barium, and lead with a 1.25 multiplier applied were calculated to be 2.73 mg/kg, 170 mg/kg, and 14.9 mg/kg, respectively. All pH concentrations observed during the initial decommissioning and subsequent excavations were below background levels.

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

Volume of solid waste (cubic yards) 1470

Volume of liquid waste (barrels) 11930

Is further site investigation required?

A supplemental site investigation (SSI) has been completed at the FL01-M location and excavation activities are currently ongoing. The results of each will be summarized in a subsequent Form 27.

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.

The sources identified at FL01-A, FL01-L, FL01-M, and FL01-N are in the process of removal through a remedial excavation, as described in the Remediation Summary section below. Remedial excavation confirmatory samples are being analyzed for the full extent of ECMC Table 915-1. A detailed discussion regarding the management of the releases identified at FL01-J (Spill ID 486555), FL01-I (Spill ID 486554), FL01-H (Spill ID 486547), FL01-D (Spill ID 486553), and FL01-C (Spill ID 486552) was submitted to the ECMC under Form 27 document #403785499 and the operator comments section of this Form 27.

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 activities were conducted in July and August 2024, to address observed exceedances at FL01-A, FL01-L, FL01-M, and FL01-N. After removal of 1,470 cubic yards of impacted soils and 11,930 BBLs of groundwater infiltration into the excavations, excavation activities were paused due to the large influx of groundwater into the excavations. Remedial excavations are currently underway to address exceedances observed at sample locations FS02-FL01-A@5', SS01-FL01-N@3', and the area surrounding FL01-M. A supplemental site investigation (SSI) has been completed in the area of FL01-M in an effort to delineate the exceedances in that area. The SSI and excavations will be summarized

Due to the presence of impacted groundwater identified in the FL01-M excavation, additional remedial excavation activities will not be continued at this time, and six groundwater monitoring wells will be installed to delineate the extent of the impacts. A proposed soil boring and groundwater monitoring well locations map is attached to this Form 27. Soil samples will be collected from the soil borings and analyzed for the full list of ECMC Table 915-1 contaminants of concern.

Soil Remediation Summary

In Situ

Ex Situ

 Bioremediation (or enhanced bioremediation)

 Yes Excavate and offsite disposal

 Chemical oxidation

 If Yes: Estimated Volume (Cubic Yards) 1470

 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)

 No Chemical oxidation

 No Air sparge / Soil vapor extraction

 No Natural Attenuation

 Yes Other Pumped and transported 11,930
 BBLS to NGL C3 for disposal

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.

After the final extent of the excavations are completed, monitoring wells will be proposed within each excavation area where groundwater infiltration was observed along with proposed monitoring wells outside of the excavation areas. Proposed groundwater monitoring wells will be proposed on a subsequent Supplemental Form 27.

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 Timeline Update

Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

Noble intends to directly address the costs of remediation at the locations as part of our asset retirement obligation process and operations. Noble has general liability insurance (policy MWZZ 316714) and financial assurance in compliance with ECMC rules. Records are available on the ECMC's website. The cost for remediation is an estimate only, costs may change upwards or downward based on site-specific information. Noble makes no representation or guarantees as to the accuracy of the estimate.

Operator anticipates the remaining cost for this project to be: \$ 50000

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? Yes

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

None

Volume of E&P Waste (solid) in cubic yards 1470

E&P waste (solid) description Hydrocarbon impacted soils

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: Waste Management, Ault, Colorado

Volume of E&P Waste (liquid) in barrels 11930

E&P waste (liquid) description Groundwater in contact with impacted soils within the excavations

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: NGL C3

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. 02/09/2025

Proposed date of completion of Reclamation. 03/27/2027

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. 06/06/2023

Actual Spill or Release date, or date of discovery. 05/09/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/21/2024

Proposed site investigation commencement. 12/27/2024

Proposed completion of site investigation. 09/27/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 09/27/2025

Proposed date of completion of Remediation. 09/27/2026

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 schedule to complete decommissioning activities and the remedial excavation. The ECMC will be updated on a subsequent Form 27 with the results of the remedial excavation, or if the schedule is changed due to site access constraints.

OPERATOR COMMENT

This Form 27 is being submitted as a fourth quarter 2024 timeline update for the completion of the remedial excavation and supplemental site investigation at the Five Rivers USX K09-21D. The remedial excavation and supplemental site investigation are currently ongoing and will be completed in accordance with the Remedial Action Plan section of this Form 27. ECMC will be updated with the results of the remedial excavation 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: 12/27/2024

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: Nick Cholas

Date: 01/08/2025

Remediation Project Number: 29932

COA Type**Description**

	ECMC has processed this form as an update; no analytical was attached thus approval of this form does not imply any agreement with comments on completion of site investigation. All ongoing/unaddressed comments/COAs from previous Forms remain applicable.
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**

404040956	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
404051746	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 2 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)