

State of Colorado
Energy & Carbon Management Commission

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Document Number:
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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 COGCC 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: 2001 16TH STREET SUITE 900		Phone: (715) 562-0251
City: DENVER State: CO Zip: 80202		Mobile: ()
Contact Person: Dan Peterson	Email: rbueuf27@chevron.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 21697 Initial Form 27 Document #: 402926792

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: LOCATION	Facility ID: 326945	API #:	County Name: WELD
Facility Name: LILLI UNIT-68N58W 18NWNE	Latitude: 40.667160	Longitude: -103.903100	
** correct Lat/Long if needed: Latitude: 40.669211		Longitude: -103.900819	
QtrQtr: NWNE	Sec: 18	Twp: 8N	Range: 58W Meridian: 6 Sensitive Area? Yes
Facility Type: SPILL OR RELEASE	Facility ID: 482201	API #:	County Name: WELD
Facility Name: Lilli Unit P-7	Latitude: 40.669204	Longitude: -103.901168	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWSE	Sec: 7	Twp: 8N	Range: 58W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SW _____

Most Sensitive Adjacent Land Use Range Land _____

Is domestic water well within 1/4 mile? No _____

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

High Priority Habitat - Mule Deer Winter Concentration Area
NA to all else

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 if encountered
Yes	SOILS	10' X 10' X 2.5' BGS	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.

A site investigation was conducted pursuant to COGCC Rule 911 at the LILLI UNIT P T8N-R58W-S7 L01 Tank Battery location.

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):

Twelve (12) grab confirmation soil samples will be collected from the produced water vessel(s) excavation, beneath the ground oil tank(s), and at the separator(s). Soil samples were analyzed by a certified laboratory for TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons), organic compounds in soil per COGCC Table 915-1, and EC, SAR, pH, and boron. Additionally, three (3) soil samples were collected and analyzed for COGCC Table 915-1 metals. All samples collected were analyzed by a certified laboratory using approved COGCC 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 compounds per COGCC 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 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 COGCC Tank Battery and Produced Water Vessel Closure Checklists was utilized and filled out during the abandonment process. A photolog was submitted on the Subsequent Form 27.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil	NA / ND
Number of soil samples collected 28	-- Highest concentration of TPH (mg/kg) 155

Soil Remediation Summary

In Situ

Ex Situ

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

- Yes _____ Excavate and offsite disposal
- _____ If Yes: Estimated Volume (Cubic Yards) _____ 550
- _____ Name of Licensed Disposal Facility or COGCC 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 Remedial Excavation Report

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 COGCC rules. Records are available on the COGCC's website.

Operator anticipates the remaining cost for this project to be: \$ 0

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 550

E&P waste (solid) description Soil

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Waste Management Ault Landfill

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

E&P waste (liquid) description _____

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: _____

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes

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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

Does Groundwater meet Table 915-1 standards? Yes

Is additional groundwater monitoring to be conducted? _____

Operator shall comply with the COGCC 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 COGCC 1000 Series Rules.

Is the described reclamation complete? No

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. 07/31/2024

Proposed date of completion of Reclamation. 01/31/2025

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. 11/04/2021

Actual Spill or Release date, or date of discovery. 05/17/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 05/13/2022

Proposed site investigation commencement. 08/10/2022

Proposed completion of site investigation. 11/30/2022

REMEDIAL ACTION DATES

Proposed start date of Remediation. 11/30/2022

Proposed date of completion of Remediation. 01/26/2024

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:

OPERATOR COMMENT

Although cadmium still exceeds the ECMC Table 915-1 GSSLs and established background thresholds, Groundwater was not identified within 14 ft of the ground surface during the remedial excavation, and cadmium was not detected above laboratory reporting limits from the two deepest excavation floor soil samples (FS02@14' and FS04@14'). Since groundwater was not encountered at the site within 14-ft of the ground surface, a desktop review of Colorado's Division of Water Resources (DWR) Well Permit Research Mapper was performed to determine the depth to water below ground surface (BGS) in permitted water wells within a 2-mile radius of the spill location. Refer to Figure 3 in the attached Remedial Excavation Report for a visual representation of the results of this inquiry. Seven permitted water wells were identified within the 2- mile radius. According to the permit records, the average static groundwater level in this region is 130 ft bgs. Since the average static groundwater level is 130-ft bgs, and cadmium exceedances above ECMC Table 915-1 GSSLs were limited to depths shallower than 11 ft bgs, there is no evidence to suggest that cadmium will migrate vertically to reach the groundwater table at the site. As such, Noble proposes to utilize ECMC Table 915-1 RSSLs when reviewing the remedial excavation confirmatory soil sample results at the site. Since cadmium was not identified above ECMC Table 915-1 RSSLs, the application of ECMC Table 915-1 RSSLs eliminates cadmium as a contaminant of concern.

Analytical results indicated that constituent concentrations in all excavation confirmatory soil samples were in compliance with ECMC Table 915-1 standards, with exception of pH. A review of native background pH values was conducted at nearby project locations, specifically at the former Lilli Unit C-9 location (Facility ID 323727; Remediation Project #21460). Soil samples collected in association with the decommissioning of this nearby tank battery exhibited native soil pH values ranging from 8.35 to 9.13, which is similar to the range of pH values from 8.17 to 8.88 observed in the remedial excavation confirmatory samples associated with the Lilli Unit P-7.

The former Lilli Unit P-7 Tank Battery and former Lilli Unit C-9 Tank Battery are within 2 miles of each other and exhibit many similarities in site conditions as follows:

- Both locations exhibit the same soil classification under the USDA web soil survey database as a Fine Sandy Loam
- Both locations exhibit similar ground surface elevations (between approximately 4,736 and 4,746 feet AMSL)
- Both locations are in the same Township (8 North) and Range (58 West)

The background soil analytical results associated with the Lilli Unit C-9 Tank Battery were submitted under ECMC document number 403665305. Based on this data, pH is naturally elevated in soils collected from the fine sandy loam observed in Township 8 North Range 58 West at values greater than those observed in the excavation confirmatory samples collected at the Lilli Unit P-7 Tank Battery. As such, pH should not be considered a contaminant of concern at this site.

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

Signed: Allan Engelhardt

Title: Environmental Consultant

Submit Date: _____

Email: chevroneform@tasman-geo.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: _____

Date: _____

Remediation Project Number: 21697

COA Type

Description

0 COA	
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Attachment Check 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

403667596	REMEDATION PROGRESS REPORT
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Total Attach: 1 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)