FORM 27 Rev 5/22

State of Colorado
Energy & Carbon Management Commission

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Report taken by: KRIS NEIDEL

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: CM PRODUCTION LLC Operator No: 10352
Address: 390 UNION BLVD SUITE 620
City: LAKEWOOD State: CO Zip: 80228
Contact Person: James Hix - East OWP EPS Email: james.hix@state.co.us

Phone Numbers
Phone: (303) 894-2100 x5181
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PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 17912 Initial Form 27 Document #: 402673506

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.
- [X] Other: Rule 911: Closure of Oil and Gas Facilities

SITE INFORMATION

Yes Multiple Facilities

Facility Type: LOCATION Facility ID: 324634 API #: County Name: JACKSON
Facility Name: MARGARET SPAULDING-69N81W 28SWSE Latitude: 40.717432 Longitude: -106.499019
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SWSE Sec: 28 Twp: 9N Range: 81W Meridian: 6 Sensitive Area? Yes

Facility Type: TANK BATTERY Facility ID: 427281 API #: County Name: JACKSON
Facility Name: M. SPAULDING CENTRALIZED TANK BATT 1 Latitude: 40.718009 Longitude: -106.498498
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SWSE Sec: 28 Twp: 9N Range: 81W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SW

Most Sensitive Adjacent Land Use Grazing Land

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? Yes

Other Potential Receptors within 1/4 mile

Wolfer Ditch less than 50 feet to the east and Spring Gulch Ditch approximately 385 feet to the west. Groundwater ranges from 11 feet below ground surface (bgs) to 30 feet bgs.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

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

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	TBD	Field Screening and Analytical Results

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

The COGCC Orphan Well Program decommissioned the Margaret Spaulding Centralized Tank Battery facility during the summer of 2021. Soil samples were collected in accordance with the Initial Form 27 for the project and COGCC Rule 915.e(2)B. Twenty soil samples, including one project background sample, were collected from the site; ten were collected from flowline excavations, one was collected from the the flowline manifold excavation, six were collected from the former tank batteries, one was collected from under the former horizontal separator, one from the former surface discharge area, and one (background) was collected from nearby, non-impacted native soil. All samples were submitted for laboratory analysis of Table 915-1 constituents.

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):

All areas suspected of having potential impacts, including the wellhead, associated flowline(s) (if present), and production equipment (if present), were visually inspected and field screen with a PID. Using these observations and field screening results, soil samples were collected from areas most likely to be impacted.

Ten discrete soil samples were collected from the various flowline excavation, one discrete soil sample was collected from the flowline manifold excavation, six discrete soil samples were collected from the former tank batteries, one discrete soil sample was collected from under the former horizontal seperator, and one discrete soil sample was collected from the former surface discharge area. All samples were submitted for laboratory analysis of Table 915-1 constituents. The attached project map provides the location of all samples.

Proposed Groundwater Sampling

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

No groundwater or pathways to groundwater were discovered during the plugging and decommissioning activities. As such, no groundwater samples were collected for this project..

Proposed Surface Water Sampling

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

No surface water was discovered in the vicinity of the wellsite during the plugging and decommissioning activities. As such, no surface water samples were collected for this project.

Additional Investigative Actions

[ ] Additional alternative investigative actions described in attached Site Investigation Plan (summary):

The footprint and locations of the tanks and tank battery and the foot print and locations of equipment Production Facility will be surveyed (GPS). Once all of the equipment has been removed, under a separate SOW a Phase II Subsurface Site Investigation will be proposed to delineate the horizontal and vertical extent of impact across the Location. Groundwater MWs will also be installed.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil **NA / ND**

Number of soil samples collected 19 -- Highest concentration of TPH (mg/kg) 32100

Number of soil samples exceeeding 915-1 11 -- Highest concentration of SAR 1.99

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

Approximate areal extent (square feet) 10000 Vertical Extent > 915-1 (in feet) 9

Groundwater

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

Was extent of groundwater contaminated delineated? No 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?

Background soil samples were collected from nearby, undisturbed native soil. Laboratory results indicate the pH value was outside of the CECMC Table 915-1 soil reclamation suitability standard. Additionally, arsenic concentrations exceeded the CECMC standard, but may be attributed to natural 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?

Soil sample results indicate E&P Waste impacts above Table 915-1 cleanup concentrations. Additional site investigation and remediation activities are warranted to address impacted soils beneath the former Margaret Spaulding Centralized Tank Battery and former Lone Pine Treatment Pits, including installation of additional groundwater monitoring wells.

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 facility was decommissioned during the summer of 2021, and a subsurface investigation was conducted in the fall of 2022. Soil samples were collected in accordance with the Initial Form 27 for the project. Based on Initial Form 27 soil sampling results, additional remediation is needed in the vicinity of the former flowlines, tank battery, and horizontal separator. The area of impact is relatively large at this facility. Based on the results of the remediation work so far, it is difficult to estimate the volume of soil that need to be remediated at this site. A remediation plan will be prepared and approved prior to undertaking any remediation activities due to the scale of impacts at the site. Please refer to attached Results Table, Map, and Photographs.

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.

This supplemental Form 27 is for installation of additional groundwater monitoring wells to be installed around the perimeter of the former tank battery/production facility. Following review of the site data, a remediation plan will be prepared and approved prior to undertaking any remediation activities due to the scale of E&P Waste impacts at the site. The OWP proposes using biopiles to treat TPH and organic compound impacted soils at the former Margaret Spaulding Centralized Tank Battery, Lone Pine Treatment Pits, and Lone Pine field well pads to meet Table 915-1. A pilot test should be performed to determine biopile feasibility. Use of biopiles will reduce truck traffic, off-site disposal, hauling clean fill back to the location, and reduce the amount of diesel fuel consumed in the process as compared to excavation and off-site disposal over mountain roads and passes. An evaluation of groundwater data will need to be performed to determine appropriate remediation technologies needed to address free-phase LNAPL and dissolved phase hydrocarbons potentially present at the location.

Soil Remediation Summary

[X] In Situ

Yes	Bioremediation (or enhanced bioremediation)	
	Chemical oxidation	
Yes	Air sparge / Soil vapor extraction	
Yes	Natural Attenuation	
Yes	Other	The OWP proposes using Biopiles to remediate TPH and organic compound impacted soils.

[X] Ex Situ

No	Excavate and offsite disposal	
	If Yes: Estimated Volume (Cubic Yards)	
	Name of Licensed Disposal Facility or ECMC Facility ID #	
Yes	Excavate and onsite remediation	
Yes	Land Treatment	
Yes	Bioremediation (or enhanced bioremediation)	
No	Chemical oxidation	
Yes	Other	Biopiles are proposed to treat TPH and organic compounds in soils.

Groundwater Remediation Summary

Yes	Bioremediation (or enhanced bioremediation)	
	Chemical oxidation	
Yes	Air sparge / Soil vapor extraction	
	Natural Attenuation	
Yes	Other	Groundwater data evaluation will be performed to determine appropriate groundwater treatment.

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.

Historic groundwater analytical data from the existing monitoring wells around the produced water treatment pits has not shown significant groundwater impacts. An evaluation of appropriate groundwater remediation treatment technologies will be performed following installation of additional groundwater monitoring wells, soil boring logs and analytical data, fluid level measurements, and groundwater analytical results.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

[X] Quarterly [ ] Semi-Annually [ ] Annually [ ] Other: Groundwater Monitoring and Phase II Subsurface Investigation results will be evaluated.

[ ] **Request Alternative Reporting Schedule:**

[ ] Semi-Annually [X] Annually [ ] Other: Remediation technology evaluation.

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: [X] Groundwater Monitoring [ ] Land Treatment Progress Report [ ] O&M Report

[ ] Other _____

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.

The CM PRODUCTION LLC - SPAULDING, MARGARET-69N81W 28SWSE and SPAULDING, MARGARET CENTRAL TANK BATTERY are in the COGCC Orphaned Well Program. The State of Colorado is self-insured. Financial Assurance is not required for the Orphaned Well Program.

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

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? No

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 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.

Proposed date of completion of Reclamation.

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.

Actual Spill or Release date, or date of discovery.

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 05/03/2021

Proposed site investigation commencement. 09/05/2023

Proposed completion of site investigation. 10/31/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/01/2024

Proposed date of completion of Remediation. 12/31/2030

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:

Based on the volume and extent of E&P Waste impacted soils at the site remediation is expected to require at least five years.

OPERATOR COMMENT

The CM PRODUCTION LLC - MARGARET SPAULDING-69N81W 28SWSE and M SPAULDING CENTRALIZED TANK BATTERY (Location ID #324634) are in the COGCC Orphaned Well Program. This supplemental Form 27 presents the results of the October 2022 subsurface investigation at the central tank battery under Remediation Project #171912 and Lone Pine Treatment Pits under Remediation Project #7058.

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

Signed: James Hix Title: East OWP EPS

Submit Date: 03/16/2023 Email: james.hix@state.co.us

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: KRIS NEIDEL Date: 11/22/2024

Remediation Project Number: 17912

COA Type	Description
	This report provides analytical results for soil borings at he former tank battery (and overflow pit), no action or remedial activity is provided. By March 2025 a supplemental Form 27 shall be submitted that provides a schedule and proposes a plan to address the known and remaining impacts.
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
403335963	FORM 27-SUPPLEMENTAL-SUBMITTED
403335966	SITE INVESTIGATION REPORT

Total Attach: 2 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)