FORM 27 Rev 5/22

# State of Colorado
# Energy & Carbon Management Commission

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Report taken by: Alexander Ahmadian

## 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: KERR MCGEE OIL & GAS ONSHORE LP Operator No: 47120
Address: P O BOX 173779
City: DENVER State: CO Zip: 80217-3779
Contact Person: Erik Mickelson Email: DJRemediation_Forms@oxy.com

**Phone Numbers**
Phone: (720) 929-4306
Mobile: ( )

## PROJECT, PURPOSE & SITE INFORMATION

### PROJECT INFORMATION

Remediation Project #: 36212 Initial Form 27 Document #: 403835660

### 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: TANK BATTERY Facility ID: 487124 API #: County Name: WELD
Facility Name: MADRIGAL 02-22 Facility TB Latitude: 40.040340 Longitude: -104.768216
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: CNW Sec: 22 Twp: 1N Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 488427 API #: County Name: WELD
Facility Name: Madrigal 02-22 Facility Latitude: 40.040451 Longitude: -104.768317
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: NWNW Sec: 22 Twp: 1N Range: 66W Meridian: 6 Sensitive Area? Yes

## SITE CONDITIONS

General soil type - USCS Classifications: SM

Most Sensitive Adjacent Land Use: Surface Water

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**

Pond 1,190 feet (ft) west. Irrigation Ditch 670 ft west. Water well 370 ft northwest. Occupied Buildings 880 ft northwest, 920 ft north, and 1,030 ft northeast. County Road 1,300 ft north. Agriculture. Groundwater at approximately 3 ft below ground surface (bgs).

# 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 |
|---|---|---|---|
| UNDETERMINED | GROUNDWATER | TBD | Groundwater Samples/Laboratory Analytical Results |
| Yes | SOILS | TBD | Soil Samples/Laboratory 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.

Decommissioning activities were completed at the Madrigal 02-22 facility on September 27, 2024. Groundwater was encountered at approximately 4 ft bgs. Visual inspection & field screening of soil at one aboveground storage tank (AST), one produced water vessel (PWV), one separator, one emission control device (ECD), & one pothole were conducted following removal activities. Soil samples (AST01@0.5', PWV-B01@4', PWV-N01@2', SEP01-INLET@3', & SEP01-OUTLET@3') were submitted for analysis of full list Table 915-1 constituents to determine if a release occurred. Portions of the sales line associated with the Madrigal 02-22 facility were removed on November 26, 2024. Samples were collected from the locations where the sales line was cut & capped [FL01(02-22)], the sales line crossed a ditch [FL02(02-22) & FL03(02-22)], & the sales line ended [FL04(02-22)]. The remainder of the sales line will be left in place due to proximity to the Brighton Lateral Ditch. Samples were submitted for full list Table 915-1 constituents to determine if a release occurred. Initial results indicated that pH impacts below the ECMC Table 915-1 allowable level & background level were present at the AST location. A verification sample was collected at the AST location & confirmed the initial result. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403973239) was submitted on November 1, 2024, & the ECMC issued Spill/Release Point ID 488427. Final results for all sales line samples are pending. Once the final laboratory reports have been received, they will be submitted in a subsequent Form 27 Supplemental report. Results for all other samples were in compliance with the Table 915-1 allowable levels & background levels. The facility excavation & sales line are depicted on Figures 1 & 2. The PID readings and soil sample results are summarized in Tables 1 & 2, respectively.

Assessment activities are ongoing & will be summarized in a subsequent Form 27 Supplemental report.

## 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 ):

Between September 27 and November 26, 2024, soil samples were collected from the facility (AST01@0.5', PWV-B01@4', PWV-N01@2', SEP01-INLET@3', and SEP01-OUTLET@3') and locations along the former sales line [FL01(02-22), FL02(02-22), FL03(02-22), and FL04(02-22)]. The samples were submitted for analysis of full list Table 915-1 constituents, using ECMC-approved methods. Initial analytical results indicated that pH impacts below the ECMC Table 915-1 allowable level and background level was present at the AST location. A verification sample was collected and confirmed the initial result. Final laboratory analytical results for all sales line samples are pending. Once the final laboratory reports have been received, they will be submitted in a subsequent Form 27 Supplemental report. Assessment activities are ongoing. The laboratory report is attached.

### Proposed Groundwater Sampling

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

On November 26, 2024, a groundwater sample [GW-FL03(02-22)@4'] was collected from the FL03 pothole at a depth of 4 ft bgs. The groundwater sample was submitted for analysis of full list Table 915-1 constituents in groundwater. Based on initial laboratory analytical results groundwater concentrations were in compliance with ECMC Table 915-1 allowable levels for organics in groundwater. No organic constituents were detected above the laboratory reporting limits. Final analytical results are pending. Background groundwater samples are needed to assess inorganic compliance. The groundwater sample location is depicted on Figure 2. The groundwater sample analytical results are summarized in Table 3.

## 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 ):

Between September 27 and November 26, 2024, visual inspection and field screening of soil were conducted at the hatch and loadout of the AST, three sidewall locations within the PWV excavation, one dumpline pothole, twelve sales line potholes, and the ECD. Based on the inspection and screening results, hydrocarbon-impacted soil was not observed at the screening locations, and no soil samples were submitted for laboratory analysis from these areas, in accordance with the ECMC Operator Guidance. A photographic log is attached.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

**Soil**

| | | | |
|---|---|---|---|
| Number of soil samples collected | 16 | ND | Highest concentration of TPH (mg/kg) |
| Number of soil samples exceeeding 915-1 | 11 | -- | Highest concentration of SAR 2.67 |
| Was the areal and vertical extent of soil contamination delineated? | No | | BTEX > 915-1 No |
| Approximate areal extent (square feet) | 1061 | | Vertical Extent > 915-1 (in feet) 6 |

**NA / ND**

**Groundwater**

| | | | |
|---|---|---|---|
| Number of groundwater samples collected | 1 | ND | Highest concentration of Benzene (µg/l) |
| Was extent of groundwater contaminated delineated? | No | ND | Highest concentration of Toluene (µg/l) |
| Depth to groundwater (below ground surface, in feet) | 4 | ND | Highest concentration of Ethylbenzene (µg/l) |
| Number of groundwater monitoring wells installed | | ND | Highest concentration of Xylene (µg/l) |
| Number of groundwater samples exceeding 915-1 | 0 | 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?

One tank battery background sample (TB-BG01@0.5') was collected from the soil used to construct the tank battery. Twelve background soil samples (NATIVE-BG01@3' through NATIVE-BG06@3' and NATIVE-BG01@6' through NATIVE-BG06@6') were collected from native material outside of the facility excavations. Background samples were submitted for laboratory analysis of pH, electrical conductivity (EC), sodium adsorption ratio (SAR), boron, and Table 915-1 metals using ECMC-approved methods. Analytical results indicate that arsenic and hexavalent chromium are naturally high in the soil used to construct the tank battery, and EC, SAR, pH, boron, arsenic, barium, hexavalent chromium, and selenium are naturally high in the native soil. The background soil sample analytical results are summarized in Table 2. The background soil sample locations are depicted on Figure 1.

☐ 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?

Assessment activities are ongoing and details will be provided in a subsequent Form 27 Supplemental report.

# 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.

Impacted soil from the AST excavation will be removed and transported to a licensed disposal facility. Final disposal information will be provided upon completion of assessment activities. Disposal records are kept on file and available upon request. The excavation areas will be backfilled and contoured to match pre-existing conditions.

## 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 data indicate that pH impacts below the ECMC Table 915-1 allowable level and background level remain in the AST excavation area. Assessment activities are ongoing. Final analytical results for all sales line soil samples are pending. Once the final laboratory reports have been received, they will be submitted in a subsequent Form 27 Supplemental report. Groundwater was encountered at approximately 4 ft bgs. Analytical results indicate that groundwater concentrations were in compliance with ECMC Table 915-1 allowable levels for organics in groundwater. No organic constituents were detected above the laboratory reporting limits. Final analytical results for the groundwater samples are pending. Background groundwater samples are needed to determine inorganic compliance. Assessment activities are ongoing.

### 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.

# 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

[ ] 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.

KMOG has sufficient insurance and bonding to fully address the anticipated costs of Remediation, including the remaining estimated costs for this project. KMOG currently has over 40 million in bonds with the Energy and Carbon Management Commission. The cost for remediation is a preliminary estimate only, costs may change upwards or downward based on site-specific information. KMOG makes no representation or guarantees as to the accuracy of the preliminary estimate.

Operator anticipates the remaining cost for this project to be: $ 13500

## WASTE DISPOSAL INFORMATION

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

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.

The site will be reclaimed in accordance with ECMC 1000 Series Reclamation Rules.

Is the described reclamation complete?

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. 10/29/2024

Actual Spill or Release date, or date of discovery. 10/29/2024

## SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/27/2024

Proposed site investigation commencement. 09/27/2024

Proposed completion of site investigation. 06/29/2025

## REMEDIAL ACTION DATES

Proposed start date of Remediation. 09/27/2024

Proposed date of completion of Remediation. 06/29/2026

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:

## OPERATOR COMMENT

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

Signed: Erik Mickelson  Title: Environmental Lead

Submit Date: 01/21/2025  Email: DJRemediation_Forms@oxy.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: Alexander Ahmadian  Date: 03/31/2025

Remediation Project Number: 36212

| 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 |
|---|---|
| 404042757 | INVESTIGATION/REMEDIATION WORKPLAN (SUPPLEMENTAL) |
| 404042877 | PHOTO DOCUMENTATION |
| 404042879 | ANALYTICAL RESULTS |
| 404043585 | ANALYTICAL RESULTS |
| 404044010 | SOIL SAMPLE LOCATION MAP |
| 404044017 | SOIL SAMPLE LOCATION MAP |
| 404146483 | FORM 27-SUPPLEMENTAL-SUBMITTED |

Total Attach: 7 Files

## General Comments

| User Group | Comment | Comment Date |
|---|---|---|
| | | Stamp Upon Approval |

Total: 0 comment(s)