

State of Colorado
Energy & Carbon Management Commission

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

- E&P Waste Other E&P Waste Non-E&P Waste
- Produced Water Workover Fluids
- Oil Tank Bottoms
- Condensate Pigging Waste
- Drilling Fluids Rig Wash
- Drill Cuttings Spent Filters
- Pit Bottoms
- Other (as described by EPA)

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 ECOM 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 ECOM 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

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 ECOM-approved methods. Initial analytical results indicated that pH impacts below the ECOM 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

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
Number of soil samples exceeding 915-1 11
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 1061

NA / ND

ND Highest concentration of TPH (mg/kg) _____
-- Highest concentration of SAR 2.67
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 6

Groundwater

Number of groundwater samples collected 1
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 4
Number of groundwater monitoring wells installed _____
Number of groundwater samples exceeding 915-1 0

ND Highest concentration of Benzene (µg/l) _____
ND Highest concentration of Toluene (µg/l) _____
ND Highest concentration of Ethylbenzene (µg/l) _____
ND Highest concentration of Xylene (µg/l) _____
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.

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

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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: _____

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: _____

Date: _____

Remediation Project Number: 36212

COA Type**Description**

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**

404042877	PHOTO DOCUMENTATION
404042879	ANALYTICAL RESULTS
404043585	ANALYTICAL RESULTS
404044010	SOIL SAMPLE LOCATION MAP
404044017	SOIL SAMPLE LOCATION MAP

Total Attach: 5 Files

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

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)