

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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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		Phone: (970) 515-1110
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Macy Kiel	Email: DJRemediation_Forms@oxy.com	Mobile: ()

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 9302 Initial Form 27 Document #: 200437794

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

No Multiple Facilities

Facility Type: TANK BATTERY	Facility ID: 446224	API #: _____	County Name: WELD
Facility Name: PLATTE 26-2		Latitude: 40.259112	Longitude: -104.855170
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWNE	Sec: 2	Twp: 3N	Range: 67W
Meridian: 6	Sensitive Area? Yes		

SITE CONDITIONS

General soil type - USCS Classifications GC Most Sensitive Adjacent Land Use Rangeland

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

Water well approximately 160 feet (ft) east, surface water approximately 420 feet northwest, wetlands located approximately 215 ft northeast and 710 feet southeast, and groundwater approximately 3 ft below ground surface (bgs). This site is located within 1/4 mile of the Mule Deer Migration Corridor and Mule Deer Winter Concentration Area High Priority Habitats (HPHs). The site is located within the Mule Deer Severe Winter Range HPH.

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
Yes	GROUNDWATER	See attached data	Groundwater Sampling/Laboratory Analysis
Yes	SOILS	TBD	Soil Sampling/Laboratory 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.

In February 2013, a drain valve on the back of the oil tank at the Clack 1-2A, Olson 2-2 facility froze and ruptured. Approximately 16 barrels (bbls) of condensate and 15 bbls of produced water were released within the tank battery containment berm, which was lined with a geosynthetic Claymax® liner. The remaining condensate and produced water were removed from the leaking aboveground storage tank (AST).

In July 2021 during closure activities of the two ASTs, impacted soil and groundwater were encountered. The impacted soil was excavated. The release was originally reported under Remediation No. 18058, which was subsequently closed out and transferred to Remediation No. 9302, as approved in the Form 27 Supplemental dated September 2, 2021 (ECMC Document No. 402770365).

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):

Please refer to the Soil Sampling Summary Attachment.

Proposed Groundwater Sampling

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

On August 4 and 6, 2015, assessment soil borings SB01 through SB08 were completed as monitoring wells MW01 through MW08, respectively. Groundwater monitoring proceeded on a quarterly basis in August 2015 and was discontinued following approval of the Form 27 Supplemental dated April 16, 2019.

On July 21, 2021, groundwater sample GW01 was collected from the 2021 excavation for full list Table 915-1 analysis. Laboratory results indicated sample GW01 exceeded ECMC Table 915-1 allowable levels for benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. The groundwater analytical results are summarized in Table 2.

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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 75
Number of soil samples exceeding 915-1 46
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 8000

NA / ND

-- Highest concentration of TPH (mg/kg) 1750
-- Highest concentration of SAR 16.8
BTEX > 915-1 Yes
Vertical Extent > 915-1 (in feet) 3

Groundwater

Number of groundwater samples collected 153
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 4
Number of groundwater monitoring wells installed 14
Number of groundwater samples exceeding 915-1 17

-- Highest concentration of Benzene (µg/l) 1100
ND Highest concentration of Toluene (µg/l)
-- Highest concentration of Ethylbenzene (µg/l) 29.4
-- Highest concentration of Xylene (µg/l) 279
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?

On July 27, 2021, six background soil samples (Native-BG01@3' through Native-BG03@3' and Native-BG01@6' through Native-BG03@6') were collected from the native material outside of the Platte 27-2 wellhead cut and cap excavation (Remediation No. 18670). Background soil samples were submitted for laboratory analysis of EC, SAR, pH, boron, and Table 915-1 metals using ECMC-approved methods. Laboratory analytical results indicate that levels of EC, SAR, arsenic, barium, cadmium, copper, lead, and selenium are naturally high in the native soil.

On July 21, 2021, one background groundwater sample (GW-BG01) was collected for Table 915-1 inorganics. Laboratory analytical results indicate the sulfate ion level in groundwater is naturally high in the area.

☐ 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?

Additional assessment will be conducted to laterally and vertically delineate the soil exceedances left in place.

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.

In 2013, approximately 80 cubic yards of petroleum hydrocarbon impacted soil were removed from within the lined containment to the depth of the geosynthetic Claymax® liner on the south side of the containment to accommodate the installation of a product recovery system, as described under the Remediation Summary section. The impacted soil was transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling. Approximately 52 cubic yards of residual impacted soil remained in place beneath the ASTs within the Claymax® liner.

In 2021, approximately 9,758 barrels of petroleum hydrocarbon impacted soil and groundwater slurry was transported to the Aggregate Recycle Facility in Weld County, Colorado, for recycling. Approximately 4,520 cubic yards of impacted soil were transported to Front Range Landfill in Erie, Colorado, for disposal. The 2013 and 2021 excavation extents are depicted on Figure 1.

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.

In March 2013, a product recovery system was constructed. The recovery system consists of two 3-inch recovery wells with 1-inch polyvinyl chloride (PVC) recovery pipes installed horizontally above the geosynthetic Claymax® liner. Approximately 10 gallons of product were removed from the two PVC recovery wells. Based on diminishing product recovery, efforts were discontinued in July 2014.

Soil Remediation Summary

☐ In Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☒ Ex Situ

Yes _____ Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) _____ 4600

Name of Licensed Disposal Facility or ECMC Facility ID # _____ 149007

No _____ Excavate and onsite remediation

_____ 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

Yes _____ Natural Attenuation

Yes _____ Other _____ Product Recovery (Above the Geosynthetic Claymax® Liner)

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.

In August 2015, assessment soil borings SB01 through SB08 were completed as monitoring wells MW01 through MW08, respectively. As of the February 2019 quarterly monitoring event, BTEX concentrations in monitoring wells MW01 through MW08 were in full compliance with ECMC Table 910-1 allowable levels for four consecutive quarterly monitoring events. Based on the soil and groundwater data, the impacted soil in place above the liner had not contributed impacts to the groundwater. Therefore, Kerr-McGee requested to discontinue the quarterly groundwater monitoring program in the Form 27 Supplemental dated April 16, 2019 (Document No. 401940522). The discontinuation of the groundwater monitoring program was subsequently approved by the ECMC. Following the approval of the Form 27 Supplemental, groundwater monitoring wells MW01 through MW08 were abandoned. The former groundwater monitoring well locations are depicted on Figure 1.

In December 2021, six groundwater monitoring wells (MW09 through MW14) and one background well (BG-MW01) were installed at the site. Groundwater monitoring continued on a quarterly basis through November 2022. As of the November 2022 quarterly monitoring event, BTEX concentrations in monitoring wells MW09 - MW14 were in full compliance with ECMC Table 915-1 allowable levels for five consecutive quarterly monitoring events. Kerr-McGee submitted a request to discontinue groundwater monitoring at the site in the Form 27 supplemental report dated March 15, 2023 and the ECMC approved the request on April 25, 2023. The historical groundwater analytical results are summarized in Table 2.

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

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: \$ 10000

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:

In 2013, the petroleum hydrocarbon impacted soil was transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling. The recovered condensate from the product recovery system was transported to the Oil Polishing Facility for reuse.

In 2021, approximately 9,758 barrels of petroleum hydrocarbon impacted soil and groundwater slurry was transported to the Aggregate Recycle Facility in Weld County, Colorado, for recycling.

Volume of E&P Waste (solid) in cubic yards 4600

E&P waste (solid) description Petroleum hydrocarbon impacted soil

ECMC Disposal Facility ID #, if applicable: 149007

Non-ECMC Disposal Facility: Front Range Landfill in Erie, CO and Aggregate Recycle Facility in Weld County, CO (434766)

Volume of E&P Waste (liquid) in barrels 1

E&P waste (liquid) description 10 gallons of condensate from product recovery system (July 2014)

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Oil Polishing 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? Yes

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 Kerr-McGee production facility remains at the site.

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. 02/13/2013

Actual Spill or Release date, or date of discovery. 02/13/2013

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/13/2013

Proposed site investigation commencement. 08/05/2015

Proposed completion of site investigation. 04/03/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/13/2013

Proposed date of completion of Remediation. 04/03/2026

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

No additional work has been done since the previous Form 27 and, as such, none of the previous attachments have been included with this form. The implementation schedule has been updated.

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

Signed: Macy Kiel

Title: HSE Advisor

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: 9302

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**

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Total Attach: 0 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)