

State of Colorado
Energy & Carbon Management Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:
404333780
Receive Date:
09/03/2025

Report taken by:
Taylor Robinson

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: <u>KERR MCGEE OIL & GAS ONSHORE LP</u>	Operator No: <u>47120</u>	Phone Numbers
Address: <u>P O BOX 173779</u>		Phone: <u>(970) 336-1152</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80217-3779</u>
Contact Person: <u>Costin McQueen</u>	Email: <u>Costin_McQueen@oxy.com</u>	Mobile: <u>()</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 4185 Initial Form 27 Document #: 1981599

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: <u>TANK BATTERY</u>	Facility ID: <u>446441</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>HSR SARCHET 7-33A & 8-33A BATTERY</u>	Latitude: <u>40.188376</u>	Longitude: <u>-104.774008</u>	
** correct Lat/Long if needed: Latitude: <u>40.188470</u>		Longitude: <u>-104.774072</u>	
QtrQtr: <u>NENE</u>	Sec: <u>33</u>	Twp: <u>3N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications SC Most Sensitive Adjacent Land Use Agriculture
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 480 feet (ft) northwest, surface water approximately 140 ft north, buildings approximately 450 ft northwest, and groundwater approximately 10 ft below ground surface (bgs).

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 type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input 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
Yes	GROUNDWATER	See attached data	Groundwater Samples/Lab Results
Yes	SOILS	100' N-S x 140' E-W x 8' bgs (max)	2 Excavations in 2007 and 4 Excavations in 2018; Soil Samples/Lab 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.

In November 2007, due to human error, the partially-buried produced water sump overflowed at the Sarchet 7, 8-33A, spilling approximately 10 barrels (bbls) of produced water within the earthen containment berm. A vacuum truck was used to recover approximately 7 bbls of produced water. The petroleum hydrocarbon impacted soil was excavated from the release area and from an area north of the water sump where historical impacts associated with the broken concrete sump were discovered.

Prior to backfilling the 2007 excavation, five gallons of MicroBlaze®, a concentrated solution of facultative microbes, nutrients, and surfactants designed to bioremediate petroleum hydrocarbons, were applied to the groundwater in the excavation.

While backfilling the 2018 excavations, 750 pounds of COGAC®, a carbon-based bioremediation product designed to capture and degrade petroleum hydrocarbons via chemical oxidation and passive bio-stimulation, were applied to the clean backfill in a series of lifts in the capillary and phreatic horizons.

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):

In December 2007, seventeen soil samples were collected from the base and sidewalls of the two excavations and submitted for laboratory analysis of total petroleum hydrocarbons (TPH). Laboratory analytical results indicated that the TPH concentrations were in full compliance with the Energy and Carbon Management Commission (ECMC), sensitive area allowable level of 1,000 milligrams per kilogram (mg/kg) at the lateral extent of the excavations. The soil samples were not analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) as the samples were collected prior to the April 1, 2009, ECMC rule changes.

Prior to requesting NFA, a soil boring assessment will be conducted within the former excavation to determine if soil concentrations remain above ECMC Table 915-1 standards.

Proposed Groundwater Sampling

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

On December 13, 2007, one groundwater sample (GW01) was collected from the base of the southern excavation for laboratory analysis of BTEX. Laboratory analytical results for groundwater sample GW01 indicated that the benzene and total xylenes concentrations exceeded the ECMC Table 910-1 allowable levels at 56 micrograms per liter (µg/L) and 7,700 µg/L, respectively. A total of 66 groundwater monitoring wells have since been installed at the site. The 24 remaining active groundwater monitoring wells are sampled quarterly in compliance with ECMC 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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 18

Number of soil samples exceeding 915-1 11

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 7320

NA / ND

-- Highest concentration of TPH (mg/kg) 8100

NA Highest concentration of SAR

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 8

Groundwater

Number of groundwater samples collected 1076

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 10

Number of groundwater monitoring wells installed 66

Number of groundwater samples exceeding 915-1 415

-- Highest concentration of Benzene (µg/l) 13400

-- Highest concentration of Toluene (µg/l) 6430

-- Highest concentration of Ethylbenzene (µg/l) 903

-- Highest concentration of Xylene (µg/l) 7700

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?

Groundwater impacts were detected in the adjoining agricultural field west of the tank battery.

Were background samples collected as part of this site investigation?

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?

REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? Yes

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Approximately 2,395 cubic yards of impacted soil was excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling. During the installation of MW14R, MW23R, and MW30R, soil samples were collected and submitted in compliance with Table 915-1. Kerr-McGee will conduct a soil boring assessment within the previous excavation to determine if soil concentrations above Table 915-1 remain.

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.

Q2 2025 quarterly monitoring results indicate elevated Benzene, TDS, and Chloride remain. The monitoring wells will continue to be sampled on a quarterly basis and submitted for Table 915-1 organics, TDS, and Chloride. Kerr-McGee plans to collect general groundwater quality parameters such as dissolved oxygen (DO) and oxidation reduction potential (ORP) at select monitoring wells during future groundwater events to further evaluate evidence of microbial activity.

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) _____ 2395
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

Yes _____ Bioremediation (or enhanced bioremediation)
Yes _____ Chemical oxidation
No _____ Air sparge / Soil vapor extraction
Yes _____ Natural Attenuation
Yes _____ Other MicroBlaze® Application (2007)
and COGAC® Application
(2018) _____

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.

Groundwater monitoring wells MW01, MW02R, MW05R3, MW10R, MW11R, MW12, MW13, MW14R, MW15, MW17-MW22, MW23R, MW24-MW28, MW29R and MW30 are sampled on a quarterly basis for Table 915-1 organics, TDS, and Chloride.

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 Colorado Oil and Gas Conservation 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: \$ 100000

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:

No beneficial use.

Volume of E&P Waste (solid) in cubic yards _____ 2395

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

ECMC Disposal Facility ID #, if applicable: _____ 149007

Non-ECMC Disposal Facility: _____

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

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? No

Is additional groundwater monitoring to be conducted? Yes

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? 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. 11/27/2007

Actual Spill or Release date, or date of discovery. 11/27/2007

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/27/2007

Proposed site investigation commencement. 11/27/2007

Proposed completion of site investigation. 01/16/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 11/27/2007

Proposed date of completion of Remediation. 07/31/2028

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

Kerr-McGee requests the removal of sulfate ion from the groundwater analytical program, as the site has consistently shown sulfate ion concentrations in groundwater below the specific background criteria throughout its history.

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

Signed: Costin McQueen

Title: Senior Environmental Rep

Submit Date: 09/03/2025

Email: Costin_McQueen@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: Taylor Robinson

Date: 03/16/2026

Remediation Project Number: 4185

COA Type**Description**

	It appears, according to Tables 5 and 6, that several inorganic constituents remain on site. Operator to propose the remediation plan for these elevated constituents in the next Form 27-Supplemental.
	According to Figure 2, it does not appear that POC has been accomplished to the north, northeast, or east of the spill location. Operator to propose additional monitoring wells in these areas for ECMC approval.
2 COAs	

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**

404333780	FORM 27-SUPPLEMENTAL-SUBMITTED
404337278	LABORATORY ANALYTICAL REPORT
404337279	LABORATORY ANALYTICAL REPORT
404337293	LABORATORY ANALYTICAL REPORT
404337294	LABORATORY ANALYTICAL REPORT
404337296	SITE MAP
404340693	GROUND WATER ELEVATION MAP
404340699	ANALYTICAL DATA SUMMARY TABLE(S)
404340700	ANALYTICAL DATA SUMMARY TABLE(S)
404340702	IMPLEMENTATION SCHEDULE
404340706	LABORATORY ANALYTICAL REPORT

Total Attach: 11 Files

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

Environmental	Until POC has been achieved in all directions no analyte reduction request will be approved for this groundwater monitoring plan.	03/16/2026
---------------	---	------------

Total: 1 comment(s)