FORM 27 Rev 5/22

State of Colorado
Energy & Carbon Management Commission

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Report taken by: Kari Brown

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: Costin McQueen Email: Costin_McQueen@oxy.com

Phone Numbers
Phone: (970) 336-1152
Mobile: ( )

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 9549 Initial Form 27 Document #: 200439143

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.
- [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.
- [X] 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: PIT Facility ID: 103144 API #: County Name: WELD
Facility Name: HELGOTH HEIRS 1 Latitude: 40.117610 Longitude: -104.732555
** correct Lat/Long if needed: Latitude: 40.117610 Longitude: -104.732555
QtrQtr: SWSW Sec: 24 Twp: 2N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications CL
Most Sensitive Adjacent Land Use Crop Land
Is domestic water well within 1/4 mile? Yes
Is surface water within 1/4 mile? No
Is groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

The nearest domestic water well is located approximately 1,050 feet northwest of the release location.

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
Yes	GROUNDWATER	See attached data	Groundwater sampling and laboratory analysis
Yes	SOILS	54' (E-W) x 128' (N-S) x 25' bgs	Excavation, soil boring, soil sampling, and 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.

Between March 13 and April 8, 2013, a Limited Phase II Site Assessment was conducted at the Helgoth Heirs Unit #1 production facility. Historical impacts to soil and groundwater were discovered during this investigation. The facility was subsequently abandoned, associated infrastructure was removed, and excavation activities were initiated. The Carbon and Energy Management Commission (ECMC) issued Spill/Release Point ID 2232617 for this release.

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):

28 soil samples were collected during the Limited Phase II Site Assessment and subsequent excavation activities, in compliance with Table 910-1. Based on the soil analytical results, impacted soils remain in place at approximately 19 feet below ground surface (bgs) in the southern portion of the northern excavation area. The estimated extent of remaining soil impacts is illustrated on Figure 1. Prior to requesting NFA an additional soil assessment will be conducted within the former excavation to determine if soil remains above Table 915-1 constituents.

Proposed Groundwater Sampling

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

Between March 13, 2013 and June 19, 2019, forty-six (46) temporary monitoring wells (SB01 - SB42, SB07R, SB08R, SB11R, SB13R) were installed. The 32 remaining active monitoring wells are sampled on a quarterly basis.

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: 49
Number of soil samples exceeeding 915-1: 12
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet): 4930

NA / ND

-- Highest concentration of TPH (mg/kg): 6700
NA Highest concentration of SAR:
BTEX > 915-1: Yes
Vertical Extent > 915-1 (in feet): 25

Groundwater

Number of groundwater samples collected: 842
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet): 24
Number of groundwater monitoring wells installed: 47
Number of groundwater samples exceeding 915-1: 271

-- Highest concentration of Benzene (µg/l): 3340
-- Highest concentration of Toluene (µg/l): 5420
-- Highest concentration of Ethylbenzene (µg/l): 1980
-- Highest concentration of Xylene (µg/l): 23800
NA Highest concentration of Methane (mg/l):

Surface Water

0 Number of surface water samples collected
0 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?

☐ 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?

Kerr-McGee will conduct a soil boring assessment within the former excavation to determine the extent of impacted soils above ECMC Table 915-1 allowable levels that remain 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.

Between July 29 and December 20, 2013, approximately 2,760 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado. In April 2025 and in October 2025, EFR events were conducted, in which a total of 700 gallons of groundwater (April 2025) and 250-300 gallons of groundwater (October 2025) and an unquantifiable volume of free product was recovered.

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.

In October 2025, enhanced fluid recovery (EFR) was carried out at monitoring wells SB20, SB21, and SB27. At the outset of operations, free-product thicknesses ranged from 0.02 to 1.73 ft. Each well underwent vacuum-extraction cycles, during which induced vacuums of –9 to –11 inHg were maintained. Concurrent PID measurements of the vac truck off-gas and well headspaces yielded readings between 154 and 661 ppm. In total, approximately 250–300 gallons of groundwater/LNAPL were recovered across the three wells, and approximately 13.3 lbs of VOC mass were recovered. Additional EFR events will be performed periodically based on the results of upcoming groundwater monitoring events. In the interim, periodic manual bailing of groundwater/LNAPL and absorbent-sock deployments will continue to target residual LNAPL.

Two soil vapor extraction wells (SVE-1 and SVE-2) were installed in the Fourth Quarter 2025. Radius of influence testing are planned for the First Quarter of 2026 to evaluate the effectiveness of SVE to address the residual petroleum hydrocarbon impacts present in the vadose zone.

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) 2760
  - 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 LNAPL recovery

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.

The 32 remaining temporary monitoring wells (SB07R, SB08R, SB10, SB11R, SB13R, SB17 - SB43) are sampled on a quarterly basis in compliance with ECMC Table 915-1. Upgradient and historically compliant groundwater monitoring well SB38 was selected from the Q3 2024 monitoring event as the site-specific local background sample location. Q4 2025 monitoring analytical results indicate that elevated benzene, ethylbenzene, total xylenes, naphthalene, 1,2,4-TMB, 1,3,5-TMB and chloride remain. Free product was observed in 5 monitoring wells SB20, SB21, SB23, SB27, and SB33. The monitoring wells will continue to be monitored on a quarterly basis in compliance with ECMC Table 915.

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: [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.

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: $ 150000

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:

Approximately 2,760 cubic yards of impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling. Approximately 3.1 barrels of LNAPL have been transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado, for recycling.

Volume of E&P Waste (solid) in cubic yards 2760

E&P waste (solid) description Hydrocarbon-impacted soil

ECMC Disposal Facility ID #, if applicable: 149007

Non-ECMC Disposal Facility:

Volume of E&P Waste (liquid) in barrels 29

E&P waste (liquid) description LNAPL / LNAPL mixed in groundwater

ECMC Disposal Facility ID #, if applicable: 434766

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.

Actual Spill or Release date, or date of discovery.

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/13/2013

Proposed site investigation commencement. 03/13/2013

Proposed completion of site investigation. 03/13/2026

REMEDIAL ACTION DATES

Proposed start date of Remediation. 07/29/2013

Proposed date of completion of Remediation. 03/13/2027

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:

Proposed date of completion of remediation extended to allow time for additional soil assessment and assessment of SVE effectiveness.

OPERATOR COMMENT

Due to over four consecutive clean quarters of TDS and sulfate ion, Kerr-McGee requests to remove total dissolved solids and sulfate ion from the sampling and analysis plan moving forward.

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: 12/30/2025 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: Kari Brown Date: 05/12/2026

Remediation Project Number: 9549

COA Type	Description
	ECMC agrees to the removal of TDS and sulfate ion from the sampling program.
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
404472058	INVESTIGATION/REMEDIATION WORKPLAN (SUPPLEMENTAL)
404472071	LABORATORY ANALYTICAL REPORT
404472072	LABORATORY ANALYTICAL REPORT
404472074	SITE MAP
404472075	SOIL SAMPLE LOCATION MAP
404472076	GROUND WATER ELEVATION MAP
404472079	ANALYTICAL DATA SUMMARY TABLE(S)
404472080	ANALYTICAL DATA SUMMARY TABLE(S)
404488977	LOGS
404655685	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 10 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)