

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

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:

- 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 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

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

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):

[Empty text box for surface water sampling details]

Additional Investigative Actions

Additional alternative investigative actions described in attached Site Investigation Plan (summary):

[Empty text box for additional investigative actions]

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 49
Number of soil samples exceeding 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 868
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 915-1 277

-- 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.

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 2026, enhanced fluid recovery (EFR) was carried out at monitoring wells SB20, SB21, SB23, SB25, SB27, SB33. At the outset of operations, free-product thicknesses ranged from 0.01 (sheen) to 1.94 ft. Each well underwent four discrete vacuum-extraction cycles, during which induced vacuums of -9 to -12 inHg were maintained. Concurrent PID measurements of the vac truck off-gas and well headspaces yielded readings between 74.5 and 449 ppm. Using the vacuum truck off-gas VOC concentration measurements and flow rates, approximately 12 lbs of VOCs were removed in the vapor phase. In total, approximately 500 gallons of groundwater/LNAPL were recovered across the wells. 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.

Q1 2026 monitoring analytical results indicate that elevated benzene, ethylbenzene, total xylenes, naphthalene, 1,2,4-TMB, 1,2,5-TMB, and chloride ion remain in monitoring wells SB07R, SB18, SB19, SB22, and SB25. Free product was observed in 5 monitoring wells SB20, SB21, SB23, SB27, and SB33. Point of compliance has been established within the site groundwater monitoring well network.

Historical data indicates that residual petroleum hydrocarbon impacts not removed by excavation activities are encountered at depths of approximately 19 feet bgs and extend to the groundwater table. Installation of SVE wells, SVE-1 and SVE-2, were completed in October 2025. A SVE pilot step test was conducted in February 2025 to assess SVE viability given the lithology and well configuration. A summary of the ROI testing is attached.

Soil Remediation Summary

<input type="checkbox"/> In Situ	<input checked="" type="checkbox"/> Ex Situ
_____ Bioremediation (or enhanced bioremediation)	Yes _____ Excavate and offsite disposal
_____ Chemical oxidation	_____ If Yes: Estimated Volume (Cubic Yards) _____ 2760
_____ Air sparge / Soil vapor extraction	_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____ 149007
_____ Natural Attenuation	No _____ Excavate and onsite remediation
_____ Other _____	_____ 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 as the site-specific local background sample location. The monitoring wells will continue to be monitored on a quarterly basis in compliance with ECMC Table 915 and EFR events will continue to remove observed LNAPL.

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: \$ 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 3

E&P waste (liquid) description LNAPL

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. 08/31/2026

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 site investigation extended to allow time for additional soil assessment.

OPERATOR COMMENT

Due to elevated 1-Methylnapthalene, and 2-Methylnapthalene above Table 915 GSSL's observed in the soil samples collected during SVE well installation, Kerr-McGee will add dissolved 1-M and dissolved 2-M to the groundwater sampling and analysis plan to monitor compliance.

A detailed report discussing the results of the SVE pilot test conducted in February 2026 and additional remediation strategies for the site is included with this report.

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: 03/27/2026

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

0 COA	
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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

404575854	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
404598789	IMPLEMENTATION SCHEDULE
404598790	ANALYTICAL DATA SUMMARY TABLE(S)
404598791	REMEDATION PROGRESS REPORT
404598792	ANALYTICAL DATA SUMMARY TABLE(S)
404598795	LABORATORY ANALYTICAL REPORT
404598796	SITE MAP
404598797	SOIL SAMPLE LOCATION MAP
404598798	SOIL SAMPLE LOCATION MAP
404598799	GROUND WATER ELEVATION MAP
404655919	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 11 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)