

State of Colorado  
Energy & Carbon Management Commission

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Receive Date:

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Report taken by:

**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	<b>Phone Numbers</b>
Address: P O BOX 173779		Phone: (970) 515-1161
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Phil Hamlin	Email: Phillip_Hamlin@oxy.com	Mobile: ( )

**PROJECT, PURPOSE & SITE INFORMATION**

**PROJECT INFORMATION**

Remediation Project #: 9926 Initial Form 27 Document #: 200440600

**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: SPILL OR RELEASE	Facility ID: 447802	API #: _____	County Name: WELD
Facility Name: SPILL/RELEASE POINT	Latitude: 40.239325	Longitude: -104.844271	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWSW	Sec: 12	Twp: 3N	Range: 67W
Meridian: 6	Sensitive Area? Yes		

**SITE CONDITIONS**

General soil type - USCS Classifications SW Most Sensitive Adjacent Land Use Non-Crop Land

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**

Wetlands are located approximately 80 feet southwest of the release location.  
Surface water is located approximately 290 feet northwest of the release location.  
The nearest domestic water well is located approximately 780 feet northwest of the release location.  
Multiple buildings and livestock holding pens are located within 1/4 mile 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	57' (E-W) x 49' (N-S) x 4' bgs	Excavation, 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.

On September 14, 2016, historical impacts were discovered during abandonment activities at the HSR-Stanley Odenbaugh 12-12 production facility, and excavation activities were initiated in two areas. The western excavation area was adjacent to the separator, and the eastern excavation area was adjacent to the partially-buried produced water vessel. Groundwater was encountered in the western excavation area at approximately 2 ft bgs, and in the eastern excavation area at approximately 4 ft bgs. The ECOM issued Spill/Release Point ID 447802 for this location.

**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 ):

Soil samples were collected from the western and eastern excavation areas, as described in the Initial Form 27 (Document No. 200440600). Based on the data presented, impacted soil was remediated to be in full compliance with the ECOM standards at the time of excavation.

**Proposed Groundwater Sampling**

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

Between September 14 and September 28, 2016, five groundwater samples (GW01, GW02, W-GW01, W-GW02, and W-GW03) were collected from the excavations. The samples were submitted for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX). Laboratory analytical results indicated that levels of benzene, toluene, and total xylenes exceeding the allowable levels were present in the excavation areas. The groundwater sample locations are depicted on Figure 1. The groundwater analytical results are summarized in Table 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	NA / ND
Number of soil samples collected <u>15</u>	-- Highest concentration of TPH (mg/kg) <u>2882</u>
Number of soil samples exceeding 915-1 <u>2</u>	NA Highest concentration of SAR _____
Was the areal and vertical extent of soil contamination delineated? <u>Yes</u>	BTEX > 915-1 <u>Yes</u>
Approximate areal extent (square feet) <u>1710</u>	Vertical Extent > 915-1 (in feet) <u>4</u>
<b>Groundwater</b>	
Number of groundwater samples collected <u>349</u>	-- Highest concentration of Benzene (µg/l) <u>2990</u>
Was extent of groundwater contaminated delineated? <u>No</u>	-- Highest concentration of Toluene (µg/l) <u>7470</u>
Depth to groundwater (below ground surface, in feet) <u>3</u>	-- Highest concentration of Ethylbenzene (µg/l) <u>1910</u>
Number of groundwater monitoring wells installed <u>19</u>	-- Highest concentration of Xylene (µg/l) <u>4810</u>
Number of groundwater samples exceeding 915-1 <u>29</u>	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?

Impacted groundwater has historically been detected in off-site temporary groundwater monitoring wells BH09, BH10, BH12, BH13, and BH14.

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?

A soil assessment will be conducted to evaluate soil conditions as compared to Table 915-1 allowable levels. The soil assessment scope of work will be submitted 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.

Between September 14 and 28, 2016, approximately 430 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 675 barrels of impacted groundwater were removed from the western and eastern excavation areas via vacuum truck and transported to a licensed disposal facility.

### 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.

Laboratory data indicate that impacted soil in the western and eastern excavation areas was remediated to be in compliance with the ECMC standards at the time of excavation. Prior to backfilling, approximately 220 pounds of OxPure® activated carbon were added to the western excavation area to mitigate remaining hydrocarbon impacts in groundwater. Air sparge / enhanced fluid recovery (AS/EFR) were selected as remedial technologies to address remaining dissolved-phase groundwater impacts. Bi-weekly mobile AS/EFR events were conducted at the site between December 6, 2018, and February 24, 2020, under an approved United State Environmental Protection Agency (USEPA) Underground Injection Control (UIC) permit application, and a total of approximately 131 barrels of impacted groundwater were removed during AS/EFR activities. On September 25, 2019, light non-aqueous phase liquid (LNAPL) was first observed in monitoring well BH05R. LNAPL gauging and removal activities were continued on a weekly basis, as needed when LNAPL was present. Approximately 1 gallon of LNAPL was recovered from BH05R via hand bailing.

Additional groundwater monitoring wells were installed upgradient, cross-gradient, and within the former PWV source area on June 27, 2025. Please refer to the Form 27 Supplemental dated September 25, 2025 (Document No. 404337880) for more details.

**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) 430
_____ 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

Yes \_\_\_\_\_ Air sparge / Soil vapor extraction

Yes \_\_\_\_\_ Natural Attenuation

Yes \_\_\_\_\_ Other Groundwater removal, OxPure® activated carbon application, LNAPL recovery, enhanced fluid 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.

Groundwater monitoring at monitoring wells BH02R, BH03, BH05R, BH06, BH08, BH09, BH14, and BH18 through BH20 is conducted on a quarterly basis for full list Table 915-1 constituents, per the condition of approval (COA) issued by the ECMC for Document No. 403910875. New monitoring wells BH18 through BH20 were analyzed for Table 915-1 organic constituents in the third quarter of 2025, but will be analyzed for full list Table 915-1 constituents during future monitoring events until an analyte reduction is approved. Monitoring wells BH01, BH04, BH07, BH10 through BH13, and BH15 through BH17 were removed from the groundwater monitoring program under an approved reduction request (Document No. 402479903). Cross-gradient and historically compliant monitoring well BH02 was used for determining inorganic compliance at the site. The groundwater monitoring well locations are illustrated on Figure 1. A groundwater elevation contour map using the November 2025 gauging data is included as Figure 2. The groundwater analytical results are summarized in Table 2 and the laboratory analytical report from the November 2025 groundwater monitoring event is attached.

# 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 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: \$ 20000 \_\_\_\_\_

## 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 430 cubic yards of impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 430

E&P waste (solid) description \_\_\_\_\_ Impacted soil

ECMC Disposal Facility ID #, if applicable: \_\_\_\_\_ 149007

Non-ECMC Disposal Facility: \_\_\_\_\_

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_ 806

E&P waste (liquid) description \_\_\_\_\_ Impacted groundwater; LNAPL

ECMC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-ECMC Disposal Facility: \_\_\_\_\_ Licensed 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 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. 09/15/2016

Actual Spill or Release date, or date of discovery. 09/14/2016

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/14/2016

Proposed site investigation commencement. 09/14/2016

Proposed completion of site investigation. 12/31/2027

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 09/14/2016

Proposed date of completion of Remediation. 12/31/2027

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:

\_\_\_\_\_

**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: Phil Hamlin

Title: Senior Environmental Rep.

Submit Date: \_\_\_\_\_

Email: Phillip\_Hamlin@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: 9926

**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**

404460986	LABORATORY ANALYTICAL REPORT
404460991	SITE MAP
404461663	ANALYTICAL DATA SUMMARY TABLE(S)
404465341	GROUND WATER ELEVATION MAP

Total Attach: 4 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)