

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 &amp; GAS ONSHORE LP</u>	Operator No: <u>47120</u>	<b>Phone Numbers</b>
Address: <u>P O BOX 173779</u>		Phone: <u>(970) 336-3500</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80217-3779</u>
Contact Person: <u>Phillip Hamlin</u>	Email: <u>Phillip_Hamlin@oxy.com</u>	Mobile: <u>( )</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 9828 Initial Form 27 Document #: 2526907

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>SPILL OR RELEASE</u>	Facility ID: <u>444878</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>SPILL/RELEASE POINT</u>	Latitude: <u>40.016982</u>	Longitude: <u>-104.955940</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWSW</u>	Sec: <u>25</u>	Twp: <u>1N</u>	Range: <u>68W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications SC 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**

The nearest domestic water well is located approximately 540 feet south-southwest of the release location.  
A surface water retention pond is located approximately 960 feet south of the release location.  
The nearest building is located approximately 1,285 feet southwest 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	66' (E-W) x 57' (N-S) x 20' 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 February 13, 2016, a dump line release was discovered by an operator during routine activities at the UPRC 25-12V production facility. The facility was shut-in, affected infrastructure was removed, and excavation activities were initiated. Groundwater was encountered in the excavation area at approximately 20 feet below ground surface (bgs). The ECMC issued Spill/Release Point ID 444878 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 ):

Soil samples were collected as described in the Initial Form 27 (ECMC Document No. 2526907). Based on the data presented, impacted soils in the excavation area were remediated to be in full compliance with ECMC standards.

**Proposed Groundwater Sampling**

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

Between June 1, 2016 and September 13, 2023, 13 temporary groundwater monitoring wells (BH01 - BH13) were installed to assess the extent of groundwater impacts and for remediation purposes. Quarterly groundwater monitoring was initiated on June 1, 2016, and is ongoing at the eight (8) monitoring wells remaining at the site (BH01 - BH05, BH07, BH08, and BH13). Monitoring wells BH06 and BH09 - BH12 were previously removed and abandoned under an approved reduction request (ECMC Document No. 402518334). Monitoring well BH13 was installed and added to the monitoring program during the Fourth Quarter 2023 event. Groundwater samples from dedicated background monitoring well BH02 are analyzed for chloride, sulfate, and total dissolved solids (TDS) only. Groundwater analytical data is presented in Table 1, and the groundwater sample locations are illustrated on Figure 1. The laboratory analytical reports for the previous four quarters of groundwater monitoring are provided as Attachment A.

**Proposed Surface Water Sampling**

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

[Empty box for surface water sampling details]

**Additional Investigative Actions**

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

[Empty box for additional investigative actions]

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 20

Number of soil samples exceeding 915-1 4

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

Approximate areal extent (square feet) 3760

### NA / ND

-- Highest concentration of TPH (mg/kg) 491

NA Highest concentration of SAR           

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 20

### Groundwater

Number of groundwater samples collected 274

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 17

Number of groundwater monitoring wells installed 13

Number of groundwater samples exceeding 915-1 59

-- Highest concentration of Benzene (µg/l) 15300  
0

-- Highest concentration of Toluene (µg/l) 10900  
00

-- Highest concentration of Ethylbenzene (µg/l) 14000  
0

-- Highest concentration of Xylene (µg/l) 22600  
00

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 BH05, BH07, BH08, and BH09.

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? No

### SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Between March 22 and May 13, 2016, approximately 2,350 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal.

### 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 soils in the excavation area have been remediated to be in full compliance with ECMC standards. On June 13, 2016, bi-weekly light non-aqueous phase liquid (LNAPL) gauging and removal activities were initiated at monitoring well BH01, and were continued through July 27, 2018. Additional remedial activities may be evaluated, as necessary, to address remaining groundwater impacts. Quarterly groundwater monitoring is ongoing and will be continued until concentrations remain in compliance with the ECMC Table 915-1 standards. Estimated time to attain NFA is TBD based on the groundwater concentrations, the extent of impacted groundwater, and the efficacy of the selected remedial technologies.

**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) _____ 2350
_____ Air sparge / Soil vapor extraction	_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____
_____ 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.

Between June 1, 2016 and September 13, 2023, 13 temporary groundwater monitoring wells (BH01 - BH13) were installed at the site to assess the extent of groundwater impacts and for remediation purposes. Monitoring wells BH06 and BH09 - BH12 were removed from the quarterly monitoring program and abandoned under an approved reduction request (ECMC Document No. 402518334). Monitoring well BH13 was installed and added to the monitoring program during the Fourth Quarter 2023 event, in accordance with the COA that was issued for a previous Form 27-Supplemental update (ECMC Document No. 403316470). The 8 temporary groundwater monitoring wells remaining (BH01 - BH05, BH07, BH08, and BH13) will continue to be sampled on a quarterly basis and submitted for laboratory analysis of Table 915-1 constituents. Cross-gradient and historically compliant groundwater monitoring well BH04 was selected from the First Quarter 2024 monitoring event as the site-specific local background locations for comparison to inorganic standards in Table 915-1. Based on a comparison to site-specific background concentrations, the chloride concentration in monitoring well BH01 was above the ECMC standard in Table 915-1 during the First Quarter 2024 monitoring event. Kerr-McGee will continue to evaluate POC for Table 915-1 standards on a quarterly basis, based on site-specific local background concentrations. The groundwater sample locations are illustrated on Figure 1, and a potentiometric surface contour map for the First Quarter 2024 monitoring event is presented as Figure 2. The boring log for recently installed temporary groundwater monitoring well BH13 is provided as Attachment B. The remaining boring logs for the temporary groundwater monitoring wells were provided in previous Form 27-Supplemental updates for this location.

# 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: \$ 45000

## 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:

NA

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 2350

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

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

Non-ECMC Disposal Facility: \_\_\_\_\_ Front Range Landfill - Erie, CO

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? Yes \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? No \_\_\_\_\_

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 has been restored to its pre-release grade. Kerr-McGee will conduct reclamation activities in accordance with ECMC 1000 Series 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. 02/13/2016

Actual Spill or Release date, or date of discovery. 02/13/2016

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/13/2016

Proposed site investigation commencement. 02/13/2016

Proposed completion of site investigation. 09/13/2023

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/22/2016

Proposed date of completion of Remediation. 12/31/2026

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**

Based on the previously approved reporting frequency, Kerr-McGee will continue to provide annual Form 27-Supplemental updates for this site. The project implementation summary is provided as Attachment C.

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

Signed: Phillip Hamlin

Title: Senior Environmental Rep

Submit Date: 02/28/2024

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: Kari Brown

Date: 04/16/2024

Remediation Project Number: 9828

**COA Type****Description**

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**

403682692	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403682948	SITE MAP
403686994	GROUND WATER ELEVATION MAP
403687016	ANALYTICAL RESULTS
403687018	ANALYTICAL RESULTS
403687045	LOGS
403687081	IMPLEMENTATION SCHEDULE
403756357	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 8 Files

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

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)