

State of Colorado  
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109

Document Number:

403885438

Receive Date:

08/22/2024

Report taken by:

RICK ALLISON

## 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	Phone Numbers
Address: P O BOX 173779		Phone: (720) 929-4306
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Erik Mickelson	Email: Erik_Mickelson@oxy.com	Mobile: ( )

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 37797 Initial Form 27 Document #: 403793339

## 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: 486511	API #: _____	County Name: WELD
Facility Name: Water Well - Facility ID 753954	Latitude: 40.062369	Longitude: -104.732676	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWSW	Sec: 12	Twp: 1N	Range: 66W Meridian: 6 Sensitive Area? Yes

## SITE CONDITIONS

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

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? No

**Other Potential Receptors within 1/4 mile**

None

**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) Thermogenic gas**DESCRIPTION OF IMPACT**

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	To be determined	Analytical results of water well samples

**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 March 4, 2024 a voluntary water sample was collected from water well Permit #47218-F, ECMC Facility ID 753954. Samples were submitted to SGS Laboratories and Isotech Laboratories. Data Summary Tables are attached. On April 22, 2024 Isotech results and analysis were received indicating the presence of a trace amount of stray thermogenic gas in the water. The ECMC was notified of the release on April 23, 2024 and a Form 19-I/S (Doc# 403765714) was submitted on April 24, 2024. The subject water well, along with water well Permit #58905-F, is used as a municipal water source. The water from both wells flows into a storage tank and is treated before it is distributed to the community. A sample from the tank was offered to the well owner but they declined.

**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 ):

**Proposed Groundwater Sampling**

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

Kerr-McGee Oil & Gas Onshore LP (KMOG) collected a follow up sample from the subject water well on July 16, 2024. Results are attached and are summarized in Tables 1-3. KMOG offered to collect a follow up sample of Permit #58905-F but the well owner declined. KMOG attempted to sample water wells within 3/4 miles of the subject water well (detailed on the Form 27 initial document #403793339). Of the 33 available water sources identified, 21 wells were sampled, 8 well owners did not respond to the sample requests, and 4 of the water wells were found to be non-functional and were unable to be sampled.

**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 ):

As part of the investigation into the source of the stray thermogenic gas, all production wells within 1 mile of the subject water well were evaluated. As described in Form 27 document #403793339, of the production wells evaluated, the Martin L-2535 1 (API# 05-123-05010) was determined to be the most likely source of the stray gas detected in the water well. The open hole in the Martin L-2535 1 provided a pathway for stray gas into the Fox Hills aquifer, and the orientation of the Martin L-2535 1 to the subject water well corresponds with the direction of free phase gas migration.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 0

Number of soil samples exceeding 915-1

Was the areal and vertical extent of soil contamination delineated?

Approximate areal extent (square feet)

### NA / ND

Highest concentration of TPH (mg/kg)

Highest concentration of SAR

BTEX > 915-1

Vertical Extent > 915-1 (in feet)

### Groundwater

Number of groundwater samples collected 2

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 571

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 0

ND Highest concentration of Benzene (µg/l)

ND Highest concentration of Toluene (µg/l)

ND Highest concentration of Ethylbenzene (µg/l)

ND Highest concentration of Xylene (µg/l)

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?

## 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.

The Martin L-2535 1 (API# 05-123-05010) was determined to be the most likely source of the stray gas detected in the subject water well due to the open hole in the well being a direct path into the Fox-Hills aquifer, as well as the geologic structure of this area placing the subject water well within the potential free phase gas migration pathway of the Martin L-2535 1 well.

## REMEDATION 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.

The Martin L-2535 1 (API# 05-123-05010) was determined to be the most likely source of the stray gas detected in the subject water well due to the open hole in the well being a direct path into the Fox-Hills aquifer, as well as the geologic structure of this area placing the subject water well within the potential free phase gas migration pathway of the Martin L-2535 1 well.

Trace butanes (C5) were not detected in the most recent water sample collected on July 16, 2024. Interpretation of the most recent isotopic data by KMOG's third party geoscientist, Dr. Anthony Gorody, indicates that there was no thermogenic gas present in the water. The Martin L2535 1 is not operated by KMOG. As detailed in Form 27 document #403793339, KMOG conducted a thorough investigation of their own production wells in the area and did not find another likely source of the stray gas in the subject water well. As such, KMOG is requesting an No Further Action (NFA) determination for this location.

### **Soil Remediation Summary**

☐ **In Situ**

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Air sparge / Soil vapor extraction  
\_\_\_\_\_ Natural Attenuation  
\_\_\_\_\_ Other \_\_\_\_\_

☐ **Ex Situ**

\_\_\_\_\_ Excavate and offsite disposal  
\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_  
\_\_\_\_\_ Name of Licensed Disposal Facility or ECMC Facility ID # \_\_\_\_\_  
\_\_\_\_\_ Excavate and onsite remediation  
\_\_\_\_\_ Land Treatment  
\_\_\_\_\_ Bioremediation (or enhanced bioremediation)  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Other \_\_\_\_\_

### **Groundwater Remediation Summary**

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Air sparge / Soil vapor extraction  
\_\_\_\_\_ Natural Attenuation  
\_\_\_\_\_ Other \_\_\_\_\_

### **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.

See comments under Proposed Groundwater Sampling in the Site Investigation Plan section of this document.

## REMEDATION 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 NFA Status Request

### 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 of guarantees as to the accuracy of the preliminary estimate.

Operator anticipates the remaining cost for this project to be: \$ 0

### WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation?

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

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

E&P waste (solid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

## REMEDATION COMPLETION REPORT

### REMEDATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes

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?

Does Groundwater meet Table 915-1 standards? Yes

Is additional groundwater monitoring to be conducted? \_\_\_\_\_

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.

Not applicable

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. 04/23/2024

Actual Spill or Release date, or date of discovery. 04/22/2024

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/22/2024

Proposed site investigation commencement. 04/22/2024

Proposed completion of site investigation. 05/20/2024

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/20/2024

Proposed date of completion of Remediation. 08/14/2024

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**

Analytical results have been uploaded to the ECMC via Form 43 Documents #403783577 and #403894712. Trace butanes (C5) were not detected in the most recent water sample collected on July 16, 2024. Interpretation of the most recent isotopic data by KMOG's third party geoscientist, Dr. Anthony Gorody, indicates that there was no thermogenic gas present in the water. The Martin L-2535 1, which was determined to be the most likely source of the stray gas detected in the water well, is not operated by KMOG. As detailed in Form 27 document #403793339, KMOG conducted a thorough investigation of their own production wells in the area and did not find another likely source of the stray gas in the subject water well. As such, KMOG is requesting an No Further Action (NFA) determination for this location.

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

Signed: Erik Mickelson

Title: Environmental Lead

Submit Date: 08/22/2024

Email: Erik\_Mickelson@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: RICK ALLISON

Date: 11/07/2024

Remediation Project Number: 37797

**COA Type****Description**

	Based on a review of the data presented it does not appear that thermogenic gas is present in the water well sample. Therefore, it appears that no further action is necessary at this time and the ECMC approves the closure request. However, if future conditions at the site indicate the presence of thermogenic gas or other impacts from oil and gas operations then further investigation or remediation may be required.
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**

403885438	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403894798	ANALYTICAL RESULTS
403894801	ANALYTICAL RESULTS
403894805	ANALYTICAL RESULTS
403986905	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 5 Files

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

		Stamp Upon Approval
--	--	---------------------

Total: 0 comment(s)