

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
404357338

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	Phone Numbers
Address: P O BOX 173779		
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Max Moran	Email: DJRemediation_Forms@oxy.com	Phone: (720) 929-4307
		Mobile: ( )

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 29262 Initial Form 27 Document #: 403385732

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

Yes  Multiple Facilities

Facility Type: WELL Facility ID: \_\_\_\_\_ API #: 123-16552 County Name: WELD

Facility Name: HSR-CHRISTY 3-14 Latitude: 40.230430 Longitude: -104.747110

\*\* correct Lat/Long if needed: Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

QtrQtr: NENW Sec: 14 Twp: 3N Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 491602 API #: \_\_\_\_\_ County Name: WELD

Facility Name: Christy 3-14 Wellhead Latitude: 40.230430 Longitude: -104.747110

\*\* correct Lat/Long if needed: Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

QtrQtr: NENW Sec: 14 Twp: 3N Range: 66W Meridian: 6 Sensitive Area? Yes

## **SITE CONDITIONS**

General soil type - USCS Classifications SP

Most Sensitive Adjacent Land Use 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**

Domestic water well: multiple domestic wells located within 1/4 mile  
Surface water: approximately 470' E of wellhead and 1175' N of separator  
Wetlands: an area with wetland characteristics is located approximately 1160' N of separator  
Spring: none  
Livestock: none  
Occupied Building: multiple occupied buildings within 1/4 mile  
High Priority Habitats: within 1/4 of the boundary of Bald Eagle Active Nest Site Half Mile Buffer

# SITE INVESTIGATION PLAN

## TYPE OF WASTE:

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste      | <input type="checkbox"/> Other E&P Waste             | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids             | _____                                  |
| <input checked="" type="checkbox"/> Oil            | <input type="checkbox"/> Tank Bottoms                |  |
| <input checked="" type="checkbox"/> Condensate     | <input type="checkbox"/> Pigging Waste               |  |
| <input type="checkbox"/> Drilling Fluids           | <input type="checkbox"/> Rig Wash                    |  |
| <input type="checkbox"/> Drill Cuttings            | <input type="checkbox"/> Spent Filters               |  |
|  | <input type="checkbox"/> Pit Bottoms                 |  |
|  | <input type="checkbox"/> Other (as described by EPA) | _____                                  |

## DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	TBD	Groundwater samples/laboratory analytical results
No	SOILS	No impacted soils	Inspection/soil samples/laboratory analytical results

## 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 August 16, 2023 through July 30, 2024, wellhead cut and cap operations and flowline removal activities were completed at the Christy 3-14 wellhead, as described in a previous Form 27-Supplemental (Document #404036396). Non-impacted groundwater was encountered within the wellhead excavation at approximately 8' bgs. Final laboratory analytical results indicated that constituent concentrations in the soil samples were in compliance with the ECOM Table 915-1 standards and/or within background limits.

## 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 a previous Form 27-Supplemental update (Document #404036396). Based on the data presented, final laboratory analytical results indicated that constituent concentrations in the soil samples were in compliance with the ECOM Table 915-1 standards and/or within background limits.

### Proposed Groundwater Sampling

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

On 8/16/23, groundwater sample GW-01 was collected from the wellhead excavation area and submitted for analysis of BTEX, naph., 1,2,4-TMB, and 1,3,5-TMB, as approved in the Form 27-Initial (Doc. #403385732). Groundwater analytical results indicated that constituent concentrations in sample GW-01 were in compliance with ECOM Table 915-1 standards for organic constituents. Based on the detections of toluene, total xylenes, and 1,2,4-TMB in groundwater sample GW-01, quarterly groundwater monitoring was initiated on 11/14/24. On 11/14/24, 2/11/25, 5/15/25, and 8/20/25 groundwater samples were collected from monitoring wells MW-01 - MW-05 and submitted for analysis of the full ECOM Table 915-1 groundwater constituents. Analytical results indicated that the toluene concentration in MW-03 collected on 8/20/25 exceeded the ECOM Table 915-1 standard. As such, a Form 19-Initial Spill/Release Report (Doc. #404341111) was submitted on 9/5/25, and the ECOM issued Spill/Release Point ID 491602.

### 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 15  
Number of soil samples exceeding 915-1 8  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 0

**NA / ND**

ND Highest concentration of TPH (mg/kg) \_\_\_\_\_  
-- Highest concentration of SAR 12.8  
BTEX > 915-1 No  
Vertical Extent > 915-1 (in feet) 0

**Groundwater**

Number of groundwater samples collected 21  
Was extent of groundwater contaminated delineated? No  
Depth to groundwater (below ground surface, in feet) 12  
Number of groundwater monitoring wells installed 5  
Number of groundwater samples exceeding 915-1 1

ND Highest concentration of Benzene (µg/l) \_\_\_\_\_  
-- Highest concentration of Toluene (µg/l) 1320  
-- Highest concentration of Ethylbenzene (µg/l) 1.1  
-- Highest concentration of Xylene (µg/l) 10.1  
NA Highest concentration of Methane (mg/l) \_\_\_\_\_

**Surface Water**

0 Number of surface water samples collected  
         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?

Empty text box for response to adjacent property impacts.

Were background samples collected as part of this site investigation?

Background soil samples WH-BG01@3' - WH-BG03@3' and WH-BG01@6' - WH-BG03@6' were collected from non-impacted native material (Valent sand/Olney fine sandy loam) adjacent to the wellhead cut and cap excavation. Background soil samples from the Breen 6-14 wellhead (located approximately 1445' south, Vona loamy sand) and the Chadima 4-14/Christy Facility (located approximately 850' NW of FL-B11, Olney find sandy loam) have been included (collected from similar soil type, depths, and from the same field), as approved in Form 27-Supplemental Document #404036396. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters in Soils and/or ECMC Table 915-1 Metals using standard methods appropriate for detecting the target analytes in Table 915-1. See Form 27-Supplemental Document #404036396 for more details.

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?

Additional site investigation activities are ongoing to further assess the groundwater impacts identified in MW-03.

**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.

Final laboratory analytical results indicated that constituent concentrations in the soil samples collected were in compliance with the applicable ECMC Table 915-1 standards and/or within background limits. The excavation areas have been backfilled and contoured to match preexisting site conditions.

**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.

Final laboratory analytical results indicated that constituent concentrations in the soil samples collected were in compliance with the applicable ECMC Table 915-1 standards and/or within background limits. Given that groundwater contained low-level organic detections, monitoring wells were installed at the site on November 6, 2024. Soil samples were collected based on the interval exhibiting the highest PID and/or from the interval above the observed water table and submitted for the full ECMC Table 915-1. Final analytical results for the soil samples collected during monitoring well installation indicated that constituent concentrations were in compliance with the applicable ECMC Table 915-1 standards and/or within background limits. See Form 27-Supplemental Document #404036396 for more details.

## Soil Remediation Summary

In Situ

Ex Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

\_\_\_\_\_ Excavate and offsite disposal

\_\_\_\_\_ Chemical oxidation

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_

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

\_\_\_\_\_ Name of Licensed Disposal Facility or ECMC Facility ID # \_\_\_\_\_

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

\_\_\_\_\_ Excavate and onsite remediation

\_\_\_\_\_ Other \_\_\_\_\_

\_\_\_\_\_ 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.

On November 6, 2024, 5 groundwater monitoring wells (MW-01 - MW-05) were installed at the site to continue monitoring compliant groundwater conditions. On 11/14/24, 2/11/25, 5/15/25, and 8/20/25 groundwater samples were collected from monitoring wells MW-01 - MW-05 and submitted for analysis of the full ECMC Table 915-1 groundwater constituents. Analytical results indicated that the toluene concentration in MW-03 collected on 8/20/25 exceeded the ECMC Table 915-1 standard. Additional site investigation activities are ongoing to further assess the groundwater impacts identified in MW-03. The relative groundwater elevation for the third Quarter of 2025 is presented on Figure 1 and summarized in Table 1. The groundwater analytical data is presented in Tables 2 and 3. The applicable secured laboratory analytical reports are attached. Monitoring wells MW-01 through MW-05 will continue to be sampled on a quarterly basis for full list Table 915-1 constituents in groundwater until 4 quarters of groundwater compliance is achieved.

# 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 ECMC. 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: \$ 8000 \_\_\_\_\_

## WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation?   No

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: \_\_\_\_\_

# 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? \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? \_\_\_\_\_

Does Groundwater meet Table 915-1 standards? \_\_\_\_\_

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.

The site will be reclaimed in accordance with ECMC 1000 Series Reclamation 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. 03/30/2023

Actual Spill or Release date, or date of discovery. 09/03/2025

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/16/2023

Proposed site investigation commencement. 08/16/2023

Proposed completion of site investigation. 12/31/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 09/03/2025

Proposed date of completion of Remediation. 12/31/2025

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**

The previous Form 27-Supplemental (Document #404178253, submitted 7/03/25) is still in process with the ECMC.

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

Signed: Max Moran \_\_\_\_\_

Title: Environmental Advisor \_\_\_\_\_

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

Email: DJRemediation\_Forms@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: 29262 \_\_\_\_\_

**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**

404357367	GROUND WATER ELEVATION MAP
404357371	ANALYTICAL DATA SUMMARY TABLE(S)
404357372	LABORATORY ANALYTICAL REPORT

Total Attach: 3 Files

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

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)