

State of Colorado  
Energy & Carbon Management Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:  
404361254

Receive Date:

---

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 #: 30488 Initial Form 27 Document #: 403448682

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: LOCATION Facility ID: 432204 API #: \_\_\_\_\_ County Name: WELD

Facility Name: MCKINSTRY 2C-21HZ Latitude: 40.216703 Longitude: -104.981393

\*\* correct Lat/Long if needed: Latitude: 40.218393 Longitude: -104.981121

QtrQtr: NENE Sec: 22 Twp: 3N Range: 68W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 484800 API #: \_\_\_\_\_ County Name: WELD

Facility Name: MCKINSTRY 28N 21N 7C 2N O SA Latitude: 40.218020 Longitude: -104.981240

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

QtrQtr: NENE Sec: 22 Twp: 3N Range: 68W Meridian: 6 Sensitive Area? Yes

## SITE CONDITIONS

General soil type - USCS Classifications SC

Most Sensitive Adjacent Land Use Crop land

Is domestic water well within 1/4 mile? No

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: none  
Surface water: located approximately 50' N and 340' N  
Wetlands: multiple areas with wetland characteristics within 1/4 mile  
Spring: none  
Livestock: multiple livestock areas within 1/4 mile  
Occupied Building: multiple occupied buildings located within a 1/4 mile  
High Priority Habitats: 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)

### DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	TBD	Groundwater samples/laboratory analytical results
Yes	SOILS	55' (E-W) x 25' (N-S) x 18' bgs	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.

Assessment activities were completed at the McKinstry 28N 21N 7C 2N O SA facility on June 7, 2023, to assess a release from a water line failure due to corrosion. Visual inspection and field screening of soils at the release location was completed and soil sample Initial Waste Characterization@3" was collected and submitted for laboratory analysis of the full ECMC Table 915-1 suite using ECMC-approved methods appropriate for detecting the target analytes. Analytical results indicated that the BTEX, TPH, naphthalene, TMBs, boron, SAR, EC, 1-methylnaph, 2-methylnaph, benzo(a)anthracene, arsenic, and barium concentrations in soil sample Initial Waste Characterization@3" exceeded the applicable ECMC Table 915-1 standards. As such, a Form 19-Initial Spill/Release Report (ECMC Document No. 403426060) was submitted on June 9, 2023, and the ECMC issued Spill/Release Point ID 484800.

From 6/7/23 - 10/5/23, excavation activities were conducted to address soil impacts at the separator location, and 20 confirmation soil samples were collected from the base and sidewalls of the final excavation extent at depths ranging from approx. 3' - 18' below ground surface (bgs). Based on waste characterization results, the confirmation soil samples were submitted for analysis of BTEX, naph., TMBs, TPH, boron, SAR, EC, PAHs, As, Ba, Se, and Cd, as approved on Form 27-Supplemental Document #403772697. Analytical results for the soil samples collected from the final excavation extent were in compliance with the applicable Table 915-1 standards with exception to the SAR and/or EC concentrations in multiple samples. However, due to groundwater in the excavation and the release being on an active facility pad, the remaining impacts were left in-place.

### 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 ):

To delineate and characterize remaining impacts, 8 soil borings were advanced in and around the final excavation extents to total depths of approximately 17.5' - 20' bgs. Monitoring wells were installed in each boring location. Soil samples were collected based on the interval exhibiting the highest PID and/or from the interval above the observed water table. The soil samples were submitted for analysis of the full Table 915-1 analytical suite using ECMC-approved methods. Final analytical results for the soil samples collected during monitoring well installation indicate that the remaining EC and SAR impacts have been fully delineated. The soil boring and monitoring well sample locations are illustrated on Figures 1 & 3.

#### Proposed Groundwater Sampling

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

On 9/5/23, groundwater sample GW-01 was collected from the excavation area and submitted for analysis of BTEX, naph., and TMBs, as approved in the Form 27-Initial Doc. #403448682. Analytical results indicated that the benzene concentration in sample GW-01 exceeded Table 915-1 standards. As such, quarterly groundwater monitoring was initiated on 3/14/25. On 3/14/25, 6/11/25, and 9/16/25, groundwater samples were collected and submitted for analysis of the full ECMC Table 915-1 groundwater analytical suite and/or dissolved As. Analytical results indicate that benzene, TDS, and/or chloride ion concentrations in groundwater samples MW-02, MW-03, MW-06, MW-07, and MW-08 exceeded the Table 915-1 standards and/or background limits in the 3rd Quarter of 2025. Step-out wells will be installed near MW-08 to further delineate groundwater impacts.

**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>59</u>	-- Highest concentration of TPH (mg/kg) <u>962</u>
Number of soil samples exceeding 915-1 <u>52</u>	-- Highest concentration of SAR <u>58.8</u>
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>1375</u>	Vertical Extent > 915-1 (in feet) <u>18</u>
<b>Groundwater</b>	
Number of groundwater samples collected <u>22</u>	-- Highest concentration of Benzene (µg/l) <u>37.3</u>
Was extent of groundwater contaminated delineated? <u>No</u>	-- Highest concentration of Toluene (µg/l) <u>14</u>
Depth to groundwater (below ground surface, in feet) <u>9</u>	-- Highest concentration of Ethylbenzene (µg/l) <u>2.83</u>
Number of groundwater monitoring wells installed <u>11</u>	-- Highest concentration of Xylene (µg/l) <u>48.2</u>
Number of groundwater samples exceeding 915-1 <u>10</u>	NA Highest concentration of Methane (mg/l) <u></u>
<b>Surface Water</b>	
<u>0</u> Number of surface water samples collected	
<u></u> 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?

Background soil samples SEP-BG01 - SEP-BG10 and BG-11 - BG-13 were collected from non-impacted native material (clay loam) adjacent to the release location at depths ranging from approximately 0.25 - 20' bgs. Background soil samples from the Mckinstry 7C-21HZ wellhead (located approximately 0.26 mi S, collected from similar soil type (clay loam), depths (3' and 6' bgs), and land use) have been included, as approved in the Form 27-Supplemental Document #404001438. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and ECMC Table 915-1 Metals using standard methods appropriate for detecting target analytes in Table 915-1. Analytical results for the background soil samples are presented in Tables 3 and 5. The background soil samples are illustrated on Figure 2.

Background monitoring wells MW-09 - MW-11 were installed in non-impacted native material adjacent to the facility pad.

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?

Based on analytical results, step-out wells will be installed near MW-08 to further delineate groundwater impacts.

## 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 June 7, 2023 - October 5, 2023, approximately 1180 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal; approximately 843 barrels of impacted groundwater and approximately 324 cubic yards of impacted hydro-excavation soil slurry were removed from the separator excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility for recycling. Laboratory analytical results indicate that constituent concentrations in the confirmation soil samples collected from the final lateral and vertical extents of the excavation area were in compliance with ECMC Table 915-1 standards, with exception to the SAR and/or EC concentrations in multiple samples. However, due to the release location being on an active facility pad, Kerr-McGee has received the Director's approval (Document #403772697) to leave the remaining metal impacts in-place at this time, to be addressed through quarterly groundwater monitoring, with the exception of arsenic. However, additional site-specific background samples were collected during drilling activities, which bring all previous As, Ba, and Se exceedances into compliance, and no metal impacts remain. The excavation area has been backfilled and contoured to match pre-existing conditions.

### REMEDIATION 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.

Additional site-specific background samples were collected during drilling activities, which bring all previous As, Ba, and Se exceedances into compliance, and no metal impacts remain. Laboratory analytical results indicated that SAR and EC concentrations exceeding the ECMC Table 915-1 allowable levels and background levels remain in the excavation. However, the production facility infrastructure will remain in place at this time, and the surface area will maintain its current usage. As the remaining elevated analytes are inorganic in nature, this material will be left in place pending future facility decommissioning. The elevated impacts will be addressed during decommissioning of the site. 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

In Situ

Ex Situ

       Bioremediation ( or enhanced bioremediation )

       Yes Excavate and offsite disposal

       Chemical oxidation

If Yes: Estimated Volume (Cubic Yards)        1504

       Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or ECMC Facility ID #        434766

Yes        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

Yes        Natural Attenuation

Yes        Other        Groundwater removal       

### 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 2/27/25, 8/7/25, and 8/8/25, 11 groundwater monitoring wells (MW-01 - MW-11) were installed at the site to delineate remaining impacts and to monitor groundwater conditions. Analytical results indicated that the benzene concentration in groundwater sample MW-08 exceeded the ECMC Table 915-1 standards in the 3rd Quarter of 2025. As such, step-out wells will be installed near MW-08 to further delineate groundwater impacts. Additionally, analytical results indicated that the TDS and/or chloride ion concentrations in groundwater samples MW-02, MW-03, MW-06, MW-07, and MW-08 exceeded the applicable Table 915-1 standards and local background limits in the 3rd Quarter of 2025. Additional upgradient native wells (MW-09 - MW-11) have been installed to further assess local groundwater conditions. Additional backgrounds were collected during drilling activities, which bring all previous As, Ba, and Se exceedances into compliance, and no metal impacts remain. As such, all future groundwater samples will be submitted for analysis of Table 915-1 organic and inorganic constituents in groundwater, only, as proposed in Form 27-Supplemental report document #404116953. Quarterly groundwater monitoring will continue until 4 quarters of compliant groundwater is reached. The Third Quarter 2025 groundwater elevation data is summarized on Table 6 and illustrated on Figure 4. The groundwater analytical results are summarized on Tables 7 and 8.

## 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 ECMC. The cost for remediation is a preliminary estimate only, costs may change upwards or downwards 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: \$ 14500

### 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 843 barrels of impacted groundwater and approximately 324 cubic yards of impacted hydro-excavation soil slurry were removed from the separator excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility for recycling.

Volume of E&P Waste (solid) in cubic yards 1504

E&P waste (solid) description Impacted soil

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

Non-ECMC Disposal Facility: Front Range Landfill - Erie, Colorado

Volume of E&P Waste (liquid) in barrels 843

E&P waste (liquid) description Impacted groundwater

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? \_\_\_\_\_

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. 06/07/2023

Actual Spill or Release date, or date of discovery. 06/07/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/07/2023

Proposed site investigation commencement. 06/07/2023

Proposed completion of site investigation. 12/31/2026

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/07/2023

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**

The previous Form 27-Supplemental (Document #404116953, 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: 30488 \_\_\_\_\_

**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**

404361267	LABORATORY ANALYTICAL REPORT
404361269	LABORATORY ANALYTICAL REPORT
404365441	SOIL SAMPLE LOCATION MAP
404365442	SOIL SAMPLE LOCATION MAP
404365445	GROUND WATER SAMPLE LOCATION
404365446	GROUND WATER ELEVATION MAP
404367479	ANALYTICAL DATA SUMMARY TABLE(S)
404367485	LABORATORY ANALYTICAL REPORT
404367512	LOGS

Total Attach: 9 Files

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

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

Total: 0 comment(s)