

State of Colorado  
Energy & Carbon Management Commission

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Receive Date:  
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Report taken by:  
Taylor Robinson

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>		
City: <u>DENVER</u>	State: <u>CO</u>	Phone: <u>(720) 929-4306</u>
	Zip: <u>80217-3779</u>	Mobile: <u>( )</u>
Contact Person: <u>Erik Mickelson</u>	Email: <u>DJRemediation_Forms@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 26074 Initial Form 27 Document #: 403227832

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: <u>LOCATION</u>	Facility ID: <u>445406</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>PSC 22-11 &amp; 32-11A O SA 34003334</u>	Latitude: <u>40.240638</u>	Longitude: <u>-104.856284</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWNE</u>	Sec: <u>11</u>	Twp: <u>3N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>485176</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>PSC 22-11 &amp; 32-11A O SA Facility</u>	Latitude: <u>40.240638</u>	Longitude: <u>-104.856284</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWNE</u>	Sec: <u>11</u>	Twp: <u>3N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

## SITE CONDITIONS

General soil type - USCS Classifications SC \_\_\_\_\_

Most Sensitive Adjacent Land Use Irrigation Canal;  
High Priority  
Bald Eagle 1/2  
Mile Nest HPH  
Buffer \_\_\_\_\_

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

Irrigation canal approximately 100 feet (ft) east. South Platte River located approximately 1,200 ft southwest; Water well located approximately 350 ft north; Groundwater approximately 3 ft below ground surface (bgs). The site is located within a 1/2-mile bald eagle active nest buffer high priority habitat (HPH), a Mule Deer Migration Corridor HPH, a Mule Deer Severe Winter Range HPH, and a Mule Deer Winter Concentration Area HPH.

## 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	TBD	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.

Decommissioning activities were completed at the PSC 22-11 & 32-11A O SA Facility on September 13, 2023. Groundwater was encountered during excavation activities at approximately 3 ft bgs. Visual inspection and field screening of soil at one aboveground storage tank (AST), two produced water vessels (PWVs), one emission control device (ECD), one meter house, and one separator were conducted following removal activities, and soil samples (AST01@0.5', PWV01-B01@3', PWV01-W01@2.5', SEP01-INLET@3' and SEP01-OUTLET@3') were submitted for analysis of full list Table 915-1 constituents, due to field indication of impacts. Soil samples PWV02-B01@3', PWV02-N01@2.5' were submitted for reduced list Table 915-1 constituents including benzene, toluene, ethylbenzene, xylenes (BTEX), 1,2,4- and 1,3,5-trimethylbenzenes (TMBs), naphthalene, total petroleum hydrocarbons (TPH)-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO), pH, electrical conductivity (EC), sodium adsorption ratio (SAR), and boron, as approved in the Form 27 Initial dated November 14, 2022 (Document No. 403227832). Laboratory analytical results indicated that benzene, TMBs, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and pH impacts outside the ECMC Table 915-1 allowable levels and site-specific background levels were present at the AST, PWV01, and separator locations. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403530481) was submitted on September 15, 2023, and the ECMC issued Spill/Release Point ID 485176. The facility soil sample locations are depicted on Figure 1. The PID readings and soil sample results are summarized in Tables 1 and 2, respectively.

### 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 ):

Between September 13 and November 28, 2023, excavation activities were conducted to address remaining soil impacts at the former AST, PWV01 and separator locations. Confirmation soil samples were collected from the base of the AST at a depth of 1.5 ft bgs, sidewalls of the PWV01 excavation at a depth of 2.5 ft bgs and from the base and sidewalls of the separator excavation at depths of 2.5 and 3.5 ft bgs, respectively. The confirmation soil samples were submitted for laboratory analysis of the site-specific waste profile including TPH, BTEX, TMBs, naphthalene, polycyclic aromatic hydrocarbons (PAHs), pH, boron, &/or select Table 915-1 metals using ECMC-approved methods. Final results indicated that soil samples collected from the final excavation extents were in compliance with the ECMC Table 915-1 standards and within site-specific background levels. The laboratory reports are attached.

#### Proposed Groundwater Sampling

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

Two groundwater samples (GW01 and GW02) were collected from the facility excavations and were submitted for laboratory analysis of full list Table 915-1 constituents. Laboratory analytical results indicate that benzene concentrations exceeding the Table 915-1 allowable level are present in groundwater. One background groundwater samples (GW-BG01) was collected from outside of the facility excavation and seven background groundwater samples were collected as part of the PSC 22-11 wellhead decommissioning activities (Rem No. 26072) and submitted for Table 915-1 inorganic parameters. Groundwater and background groundwater samples are depicted on Figures 1 & 2. The groundwater and background groundwater analytical results are summarized in Table 3.

### 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 ):

On September 13, 2023, visual inspections and field screening of soils was conducted at the footprint and loadout of the AST, three sidewalls of each PWV excavation, the dumplines for each PWV, the meter house, and the ECD footprint. Based on the inspection and screening results, hydrocarbon-impacted soils were not observed at the soil screening locations. As a result, no soil samples were submitted for laboratory analysis from these areas in accordance with the ECMC Operator Guidance for Oil & Gas Facility Closure document. The soil sample locations are depicted on Figure 1. A photographic log is attached.

## SITE INVESTIGATION REPORT

### SAMPLE SUMMARY

Soil	NA / ND
Number of soil samples collected <u>23</u>	-- Highest concentration of TPH (mg/kg) <u>641.3</u>
Number of soil samples exceeding 915-1 <u>21</u>	-- Highest concentration of SAR <u>1.18</u>
Was the areal and vertical extent of soil contamination delineated? <u>No</u>	BTEX > 915-1 <u>No</u>
Approximate areal extent (square feet) <u>1410</u>	Vertical Extent > 915-1 (in feet) <u>6</u>
<b>Groundwater</b>	
Number of groundwater samples collected <u>2</u>	-- Highest concentration of Benzene (µg/l) <u>57.2</u>
Was extent of groundwater contaminated delineated? <u>No</u>	-- Highest concentration of Toluene (µg/l) <u>275</u>
Depth to groundwater (below ground surface, in feet) <u>3</u>	-- Highest concentration of Ethylbenzene (µg/l) <u>17.2</u>
Number of groundwater monitoring wells installed <u>0</u>	-- Highest concentration of Xylene (µg/l) <u>346</u>
Number of groundwater samples exceeding 915-1 <u>1</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?

One tank battery background soil sample (TB-BG01@0.5') was collected from the soil used to construct the tank battery for comparison to samples collected within the fill material. Six native background soil samples (NATIVE-BG01@3' through NATIVE-BG03@3' & NATIVE-BG01@6' through NATIVE-BG03@6') were collected from the native material outside of the facility excavations. Sixteen background soil samples were collected as part of the PSC 22-11 wellhead cut & cap (Rem# 26072) located in the same quarter section & NRCS soil type as the facility. Background soil samples were submitted for lab analysis of pH, EC, SAR, boron, & metals, using ECMC-approved methods. Analytical results indicate that arsenic is naturally high in the soil used to construct the tank battery & SAR, pH, arsenic, barium, cadmium, copper, lead, selenium, silver, & zinc are naturally high in the native soil. The background soil sample results are summarized in Table 2 & sample locations are depicted on Figure 2.

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?

Groundwater monitoring wells will be installed to delineate the dissolved-phase plume. The groundwater monitoring well installation scope of work will be summarized in 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.

Approximately 2380 cubic yards of impacted soil were removed from the site and transported to the Front Range Landfill in Erie, Colorado for disposal. Disposal records are kept on file and are available upon request. The excavation area will be 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.

Laboratory data indicate that impacted soil in the excavation areas has been removed and all remaining soil at the extent of the excavations is in compliance with the ECMC Table 915-1 standards and within site-specific background levels. Groundwater was encountered in the facility excavations at approximately 3 ft bgs. Laboratory analytical results indicate benzene impacts exceeding the Table 915-1 allowable level for benzene are present in groundwater.

### Soil Remediation Summary

In Situ

Ex Situ

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

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

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

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) 2380

\_\_\_\_\_ 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.

Groundwater monitoring wells will be installed to delineate the dissolved-phase plume. The groundwater monitoring well installation scope of work will be summarized in subsequent Form 27 supplemental report.

Per the condition of approval (COA) issued by the ECMC to Document No. 403568106, a minimum of one soil sample will be collected from each soil boring advanced during monitoring well installation and the samples will be submitted for laboratory analysis.

# 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 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: \$ 15500 \_\_\_\_\_

## 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:

N/A

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 2380

E&P waste (solid) description Impacted Soil

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

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

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? Yes

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 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. 09/14/2023

Actual Spill or Release date, or date of discovery. 09/14/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/13/2023

Proposed site investigation commencement. 09/13/2023

Proposed completion of site investigation. 05/29/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 09/13/2023

Proposed date of completion of Remediation. 06/29/2025

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**

No new work has been completed since the previous Form 27 supplemental submittal. The Implementation Schedule has been updated with new projected completion dates.

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: 09/04/2024

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: Taylor Robinson

Date: 10/25/2024

Remediation Project Number: 26074

**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**

Att Doc Num	Name
403906298	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 1 Files

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

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)