

State of Colorado  
Energy & Carbon Management Commission

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

**PROJECT, PURPOSE & SITE INFORMATION**

**PROJECT INFORMATION**

Remediation Project #: 30862 Initial Form 27 Document #: 403460023

**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: 445558	API #: _____	County Name: WELD
Facility Name: SHARKEY8&9-35&10-3 O SA 34001942	Latitude: 40.264899	Longitude: -104.854555	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SESE	Sec: 35	Twp: 4N	Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 485884 API #: \_\_\_\_\_ County Name: WELD

Facility Name: Sharkey 8 & 9-35 & 10-3 O SA Latitude: 40.264899 Longitude: -104.854555

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

QtrQtr: SESE Sec: 35 Twp: 4N Range: 67W Meridian: 6 Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications SP Most Sensitive Adjacent Land Use Surface Water

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**

Surface water 530 feet (ft) west and Western Mutual Ditch 1,020 ft east. Water well 690 ft southwest. County road 220 ft north. Commercial building 870 ft northeast. Residential buildings 1160 ft east. Groundwater at approximately 2 ft below ground surface (bgs). The site is located within a Mule Deer Severe Winter Range and within a ¼ mile of the boundary of a Mule Deer Migration Corridor and Mule Deer Winter Concentration High Priority Habitat (HPH) areas. This site is located in 100 year floodplain.

**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 Sharkey8&9-35 & 10-3 O SA Facility on December 28 and December 29, 2023. Groundwater was encountered during excavation activities at depths ranging from 2 to 3 ft bgs. Visual inspection and field screening of soil at three aboveground storage tanks (ASTs), two produced water vessel (PWVs), one emission control device (ECD), one meter house, two separators, and dumphines were conducted removal activities, and soil samples (AST01@2', AST02@1', AST03@1.5', PWV01-E01@2.5', PWV01-B01@6', PWV02-E01@2.5', PWV02-B01@6', SEP01-INLET@4', SEP01-OUTLET@4', SEP02-INLET@4', SEP02-OUTLET@4', FL01@4', and FL02@4') were submitted for analysis of full 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), Table 915-1 polycyclic aromatic hydrocarbons (PAHs), pH, electrical conductivity (EC), sodium adsorption ratio (SAR), boron, and Table 915-1 metals to determine if a release occurred. Laboratory analytical results indicated that TPH, benzene, TMBs, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, SAR, arsenic, barium, and/or lead impacts exceeding the ECMC Table 915-1 allowable levels and/or site-specific background levels were present at the AST01, AST02, PWV01, PWV02, SEP01, SEP02, FL01, and FL02 locations. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403640310) was submitted on December 29, 2023 and the ECMC issued Spill/Release ID 485884. 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.

Assessment activities are ongoing and will be summarized in a subsequent Form 27 Supplemental report.

**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 December 28, 2023, and May 20, 2024, excavation activities were conducted at the former facility and confirmation soil samples were collected from the base of the excavation at approximately 3 ft bgs. The samples were submitted for analysis of the site-specific waste profile including TPH, BTEX, TMBs, PAHs, SAR, pH, boron, and select Table 915-1 metals using ECMC-approved methods. Laboratory analytical results indicate that TPH, benzene, TMBs, PAHs, SAR, pH, arsenic, and lead impacts exceeding the Table 915-1 allowable levels and background levels remain. Additional excavation cannot be completed due to the presence of shallow groundwater in the excavation. Assessment activities are ongoing. The laboratory reports are attached.

**Proposed Groundwater Sampling**

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

Five groundwater samples (PWV-GW01, SEP01-GW01, SEP02-GW01, FL01-GW01, and FL02-GW01) were collected from the PWV, SEP01, SEP02, FL01, and FL02 excavations. The groundwater samples were submitted for laboratory analysis of full list Table 915-1 constituents for groundwater. Two background groundwater samples (GW-BG01 and GW-BG02) were also collected and submitted for laboratory analysis of Table 915-1 inorganic constituents for groundwater. Laboratory analytical results indicate that benzene and/or TMBs impacts exceeding the Table 915-1 allowable levels are present in groundwater at the PWV, SEP02, FL01, and FL02 excavations.

**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 December 28, 2023, visual inspections and field screening of soils was conducted at the base and loadout for each AST, two sidewalls of each PWV excavation, the meter house, and the ECD. 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. A photographic log is attached.

**SITE INVESTIGATION REPORT**

**SAMPLE SUMMARY**

Soil	NA / ND
Number of soil samples collected <u>53</u>	-- Highest concentration of TPH (mg/kg) <u>3645</u>
Number of soil samples exceeding 915-1 <u>53</u>	-- Highest concentration of SAR <u>12.9</u>
Was the areal and vertical extent of soil contamination delineated? <u>No</u>	BTEX > 915-1 <u>Yes</u>
Approximate areal extent (square feet) <u>12298</u>	Vertical Extent > 915-1 (in feet) <u>4</u>
<b>Groundwater</b>	
Number of groundwater samples collected <u>5</u>	-- Highest concentration of Benzene (µg/l) <u>93.9</u>
Was extent of groundwater contaminated delineated? <u>No</u>	-- Highest concentration of Toluene (µg/l) <u>60.2</u>
Depth to groundwater (below ground surface, in feet) <u>2</u>	-- Highest concentration of Ethylbenzene (µg/l) <u>24.3</u>
Number of groundwater monitoring wells installed <u>0</u>	-- Highest concentration of Xylene (µg/l) <u>270</u>
Number of groundwater samples exceeding 915-1 <u>4</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?

Four native background soil samples were collected from the native material outside of the facility excavations. The background soil samples were submitted for analysis of pH, EC, SAR, boron, and Table 915-1 metals using ECMC-approved methods. Analytical results indicate that pH, arsenic, barium, and selenium are naturally high in the native soil. The background soil sample laboratory analytical results are summarized in Table 2.

Two background groundwater samples were collected for analysis of Table 915-1 inorganic constituents for groundwater. Analytical results indicate that levels of sulfate ion are naturally high in the groundwater. Background groundwater analytical results are summarized in Table 3.

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?

Assessment activities are ongoing and will be summarized in a subsequent Form 27 Supplemental report. Remedial alternatives will be evaluated following the lateral and vertical delineation of impacts.

Following completion of excavation activities, groundwater monitoring wells will be installed to delineate the dissolved-phase plume. The groundwater monitoring well scope of work will be provided in a 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 160 barrels of impacted groundwater were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 3,180 cubic yards of impacted soil were removed from the site and transported to the Front Range Landfill in Erie, Colorado for disposal. Approximately 420 cubic yards of impacted soil were removed from the site and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Disposal records are kept on file and are available upon request. The excavation area was 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 impacts exceeding the ECMC Table 915-1 allowable level and background levels for TPH, benzene, TMBs, PAHs, SAR, pH, arsenic, and lead remain at the former facility. Additional excavation cannot be completed due to the presence of shallow groundwater in the excavation. Assessment activities are ongoing and will be summarized in a subsequent Form 27 Supplemental report. Remedial alternatives will be evaluated following the lateral and vertical delineation of impacts.

### Soil Remediation Summary

In Situ

Ex Situ

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

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

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

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) 3600

\_\_\_\_\_ 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.



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. 12/29/2023

Actual Spill or Release date, or date of discovery. 12/29/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/28/2023

Proposed site investigation commencement. 12/28/2023

Proposed completion of site investigation. 04/28/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/28/2023

Proposed date of completion of Remediation. 04/28/2028

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**

Additional assessment activities are pending due to flooding in the location of the former facility making additional sample collection inaccessible.  
No additional work has been done since the previous Form 27 and, as such, none of the previous attachments have been included with this form. The implementation schedule has been updated.

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: \_\_\_\_\_

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: 30862

**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

Total Attach: 0 Files

**General Comments**

**User Group**

**Comment**

**Comment Date**

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)