

State of Colorado  
Energy & Carbon Management Commission

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Document Number:

403862496

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		Phone: (970) 515-1161
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Phil Hamlin	Email: Phillip_Hamlin@oxy.com	Mobile: ( )

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 22034 Initial Form 27 Document #: 402951936

## 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: 446070	API #: _____	County Name: WELD
Facility Name: HUNTER/HUNTER 9&16-32 O SA 34003467		Latitude: 40.355730	Longitude: -104.910164
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NESE	Sec: 32	Twp: 5N	Range: 67W
Meridian: 6	Sensitive Area? Yes		

Facility Type: <u>SPILL OR RELEASE</u>		Facility ID: <u>481981</u>	API #: _____	County Name: <u>WELD</u>	
Facility Name: <u>Hunter, Hunter 9&amp;16-32 O SA</u>			Latitude: <u>40.355730</u>	Longitude: <u>-104.910164</u>	
** correct Lat/Long if needed: Latitude: _____ Longitude: _____					
QtrQtr: <u>NENE</u>	Sec: <u>32</u>	Twp: <u>5N</u>	Range: <u>67W</u>	Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>

## **SITE CONDITIONS**

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Agriculture

Is domestic water well within 1/4 mile? No Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? Yes

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

Agriculture to the southwest; Groundwater at approximately 5.5 feet below ground surface (ft bgs).

## **SITE INVESTIGATION PLAN**

### **TYPE OF WASTE:**

- |  |  |   |
|--|--|---|
| <input checked="" type="checkbox"/> <b>E&amp;P Waste</b> | <input type="checkbox"/> <b>Other E&amp;P Waste</b>  | <input type="checkbox"/> <b>Non-E&amp;P Waste</b> |
| <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	See attached data.	Groundwater Samples/Laboratory Analytical Results
Yes	SOILS	See attached data.	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 at the Hunter/Hunter 9&16-32 O SA Facility were completed on April 11, 2022. Groundwater was encountered during excavation activities at approximately 5.5 ft bgs. Visual inspection and field screening of soils at one aboveground storage tank (AST), one produced water vessel (PWV), one pothole, one meter house, and one separator were conducted following removal activities and soil samples AST01@6"-WP, PWV-B01@4', PWV-N01@2'-WP, SEP01-Inlet@5'-WP, SEP01-Outlet@4'-WP, and PH01@5'-WP were submitted for laboratory 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 due to field indication of impact. Laboratory analytical results indicated the AST soil sample AST01@6"-WP, the flowline pothole sample PH01@5'-WP, and the separator soil sample SEP01-Outlet@4'-WP exceeded the ECOM Table 915-1 allowable levels for benzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, barium, and/or selenium. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403012433) was submitted on April 14, 2022 and the ECOM issued Spill/Release Point ID 481981. The analytical results for the remaining soil samples were within compliance of the ECOM Table 915-1 standards or below the analytical variability of background levels.

### **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 April 11 and September 6, 2022, excavation activities were conducted to address remaining soil impacts at the former facility location and confirmation soil samples were collected from the base and sidewalls of the final extents of the excavations at depths ranging from 5 ft bgs to 11.5 ft bgs. The confirmation soil samples were submitted for laboratory analysis of the excavation-specific waste profile developed at the time of sampling including benzene, TMBs, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, barium, and/or selenium using ECMC-approved methods. Analytical results indicated that constituent concentrations in the soil samples collected from the final excavation extent were in compliance with the ECMC Table 915-1 standards and/or below the analytical variability of background levels. Therefore, further excavation was not warranted, as approved in the Form 27 Supplemental dated December 28, 2022 (Document No. 403244257).

## Proposed Groundwater Sampling

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

On June 6 and June 15, 2022, two groundwater samples (GW01 and GW02) were collected from the facility excavations and were submitted for Table 915-1 analyses. Two background groundwater samples were also collected and submitted for Table 915-1 inorganic parameters. Based on the laboratory analytical results, both samples exceeded the ECMC Table 915-1 allowable levels for benzene, total xylenes, 1,2,4-trimethylbenzene, and/or 1,3,5-trimethylbenzene. The excavation groundwater sample and background sample locations are depicted on Figure 1. The groundwater sample analytical results are summarized in Table 1.

## 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 April 11, 2022, visual inspections and field screening of soils were conducted at the base, hatch, and drainline of the AST, three sidewalls of the PWV excavation, the PWV dumphines, the separator footprint, and the meter house. 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.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 82

Number of soil samples exceeding 915-1 39

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 2309

### NA / ND

-- Highest concentration of TPH (mg/kg) 356.1

-- Highest concentration of SAR 1.71

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 12

### Groundwater

Number of groundwater samples collected 14

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 6

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 8

-- Highest concentration of Benzene (µg/l) 770

ND Highest concentration of Toluene (µg/l)

-- Highest concentration of Ethylbenzene (µg/l) 210

-- Highest concentration of Xylene (µg/l) 1470

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?

☒ Were background samples collected as part of this site investigation?

One tank battery background soil sample was collected from the soil used to construct the tank battery for comparison to shallow samples collected within the fill material. Four native background soil samples were collected from the native material outside of the 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 arsenic and selenium are naturally high in the soil used to construct the tank battery and arsenic and selenium are naturally high in the native soil. Background soil analytical results are summarized in Tables 1-3 and 1-4.

☐ 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 the determined groundwater flow direction, a dedicated background groundwater monitoring well will be installed upgradient of the site to be sampled for Table 915-1 concentrations of inorganic parameters.

Quarterly groundwater monitoring of the newly-installed well network was initiated on June 21, 2024. Point of compliance (POC) will continue to be evaluated after additional rounds of sampling have been completed.

## 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 3,500 cubic yards of impacted soil were removed from the site and transported to Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 760 cubic yards of impacted soil were removed from the site and transported to the Front Range Landfill in Erie, Colorado for disposal. Approximately 7,441 bbls of impacted water were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Disposal records are kept on file and available upon request.

### 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.

On June 5th, 2024, eleven groundwater monitoring wells were installed in order to delineate the extent and magnitude of any remaining impacts. One soil sample was collected from each soil boring and submitted for laboratory analysis of full list Table 915-1 analysis. Results indicated that arsenic, barium, and selenium concentrations exceeding the Table 915-1 allowable levels and site-specific background levels were present at the SB04, SB05, and SB07 through SB11 locations. Soil analytical data is presented in Table 1. The soil boring logs are attached.

Quarterly groundwater monitoring of the newly-installed well network was initiated on July 28, 2023. Analytical results from all monitoring wells indicated that total dissolved solids (TDS) and/or sulfate ion concentrations exceeding the ECMC allowable levels and background levels are present at the MW01, MW08, MW10, and MW11 locations. All results for Table 915-1 organic constituents were below the laboratory reporting limit and ECMC allowable levels. POC will continue to be evaluated after additional rounds of sampling have been completed.

### Soil Remediation Summary

☐ In Situ

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

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

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

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

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

☒ Ex Situ

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

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 7260

Name of Licensed Disposal Facility or ECMC Facility ID # \_\_\_\_\_ 149007

No \_\_\_\_\_ 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.

In June 2024, groundwater monitoring wells MW01 through MW11 were installed at the site. Groundwater monitoring wells MW01 through MW11 are now being sampled on a quarterly basis for the full list of analytes for groundwater in Table 915-1 constituents. Upgradient groundwater monitoring well MW06 was established as a representative background sample for calculating the inorganic parameters in Table 915-1. Based on a comparison to background concentrations, POC wells MW01, MW08, MW10, and MW11 were above the Table 915-1 standards for Table 915-1 inorganic constituents during the third quarter 2024 monitoring event. The monitoring well locations are depicted on Figure 1. The Groundwater Elevation Contour Map generated using the June 2024 survey data is provided as Figure 2. The groundwater analytical results are summarized in Table 2, and the laboratory analytical report for the June 2024 groundwater monitoring event is attached.

Based on the determined groundwater flow direction, a dedicated background groundwater monitoring well will be installed upgradient of the site to be sampled for Table 915-1 concentrations of inorganic parameters.

Groundwater monitoring will continue on a quarterly basis until a No Further Action status request is warranted.

## 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: \$ 30000

### 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 3,500 cubic yards of impacted soil were removed from the site and transported to Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 7,441 bbls of impacted water were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 4260

E&P waste (solid) description Impacted Soil

ECMC Disposal Facility ID #, if applicable: 149007

Non-ECMC Disposal Facility: Front Range Landfill in Erie, CO (760 CY)

Volume of E&P Waste (liquid) in barrels 7441

E&P waste (liquid) description Impacted water

ECMC Disposal Facility ID #, if applicable: 434766

Non-ECMC Disposal Facility:

## REMEDIATION COMPLETION REPORT

## **REMEDATION 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. Timeliness of reclamation and completion will be subject to NFA, surface owner discretion and land use, and suitable ground conditions which allow for execution of surface reclamation activities so as to not cause unwarranted damages.

Is the described reclamation complete? No \_\_\_\_\_

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? Yes \_\_\_\_\_

If YES, does the seed mix comply with local soil conservation district recommendations? Yes \_\_\_\_\_

Did the local soil conservation district provide the seed mix? No \_\_\_\_\_

### **SITE RECLAMATION DATES**

Proposed date of commencement of Reclamation. 12/18/2024 \_\_\_\_\_

Proposed date of completion of Reclamation. 01/18/2025 \_\_\_\_\_

## **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. 04/12/2022 \_\_\_\_\_

Actual Spill or Release date, or date of discovery. 04/12/2022 \_\_\_\_\_

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 04/11/2022 \_\_\_\_\_

Proposed site investigation commencement. 04/11/2022 \_\_\_\_\_

Proposed completion of site investigation. 07/31/2025 \_\_\_\_\_

### **REMEDIAL ACTION DATES**

Proposed start date of Remediation. 04/11/2022 \_\_\_\_\_

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**

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

Signed: Phil Hamlin

Title: Senior Environmental Rep

Submit Date:

Email: Phillip\_Hamlin@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: 22034

**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.

<b><u>Att Doc Num</u></b>	<b><u>Name</u></b>
403864618	GROUND WATER ELEVATION MAP
403864626	ANALYTICAL RESULTS
403865936	LOGS
403866412	SITE MAP
403866415	ANALYTICAL RESULTS
403866860	ANALYTICAL RESULTS

Total Attach: 6 Files

**General Comments**

<b><u>User Group</u></b>	<b><u>Comment</u></b>	<b><u>Comment Date</u></b>
		Stamp Upon Approval

Total: 0 comment(s)