

State of Colorado  
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
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Document Number:

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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) 336-350
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 #: 5719 Initial Form 27 Document #: 2213742

## 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

No Multiple Facilities

Facility Type: LOCATION	Facility ID: 328116	API #: _____	County Name: WELD
Facility Name: HSR-DUBACH-63N66W 4SESE		Latitude: 40.248560	Longitude: -104.775320
		** correct Lat/Long if needed: Latitude: 40.252029	Longitude: -104.773728
QtrQtr: SESE	Sec: 4	Twp: 3N	Range: 66W Meridian: 6 Sensitive Area? Yes

## SITE CONDITIONS

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

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**

Water well approximately 55 feet (ft) west, surface water (irrigation canal) approximately 40 ft north, occupied building approximately 410 ft northeast, and groundwater approximately 6 ft below ground surface (bgs).

**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	See Attached Data	Groundwater Samples/Lab Analysis
Yes	SOILS	32' N-S X 30' E-W X 8' bgs	Soil Samples/Lab Analysis

**INITIAL ACTION SUMMARY**

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

In February 2011, field crews discovered soil with historical petroleum hydrocarbon impacts while rebuilding the Dubach 16-4, Thesing 9-4 tank battery. The petroleum hydrocarbon impacted soil was excavated.

**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 ):

On February 10 and 11, 2011, six soil samples were collected from the excavation sidewalls and submitted for laboratory analysis of total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Laboratory analytical results indicated that TPH and BTEX concentrations were in full compliance with ECOM standards at the time of sampling at the lateral extent of the excavation.

**Proposed Groundwater Sampling**

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

On September 2, 2010, one groundwater sample (GW01) was collected from the base of the excavation for laboratory analysis of BTEX. Laboratory analytical results for groundwater sample GW01 indicated that the BTEX concentrations exceeded the ECOM allowable levels at the time of sampling at 4,800 micrograms per liter (µg/L), 2,100 µg/L, 850 µg/L, and 7,700 µg/L, respectively.

Groundwater monitoring has been conducted on a quarterly basis since March 2011.

**Proposed Surface Water Sampling**

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

Surface water sampling of the irrigation canal has been conducted on a quarterly basis since March 2012. The surface water sampling locations are depicted on Figure 1.

**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 6

Number of soil samples exceeding 915-1 2

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 960

### NA / ND

-- Highest concentration of TPH (mg/kg) 6600

NA Highest concentration of SAR

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 6

### Groundwater

Number of groundwater samples collected 583

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 7

Number of groundwater monitoring wells installed 16

Number of groundwater samples exceeding 915-1 138

-- Highest concentration of Benzene (µg/l) 7900

-- Highest concentration of Toluene (µg/l) 2100

-- Highest concentration of Ethylbenzene (µg/l) 1100

-- Highest concentration of Xylene (µg/l) 12000

NA Highest concentration of Methane (mg/l)

### Surface Water

64 Number of surface water samples collected

0 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?

Groundwater impacts were detected in the adjoining rangeland north of the tank battery.

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

☐ 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?

Per the conditions of approval (COAs) for Form 27 Document No. 403913068, a soil investigation will be conducted in the vicinity of former excavation soil samples N02@6', E01@6', and S01@6' as well as monitoring wells MW01, MW02, MW03, MW04, MW06, and MW11. Samples will be submitted for full list Table 915-1 constituents. The proposed soil sample locations are depicted on Figure 1.

## REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? Yes

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Approximately 285 cubic yards of impacted soil were excavated and transported to Buffalo Ridge Landfill in Keenesburg, Colorado, for disposal. The impacted soil was excavated into the capillary and phreatic zones to address potential petroleum hydrocarbon impacts that may have been present below the current groundwater table due to seasonal fluctuations.

## 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.

Please refer to the Form 27 Document No. 403913068 for more details.

Per the COAs for Form 27 Document No. 403913068, a soil investigation will be conducted in the vicinity of former excavation soil samples N02@6', E01@6', and S01@6' as well as monitoring wells MW01, MW02, MW03, MW04, MW06, and MW11. Samples will be submitted for full list Table 915-1 constituents. The proposed soil sample locations are depicted on Figure 1.

## 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) \_\_\_\_\_ 285  
Name of Licensed Disposal Facility or ECMC Facility ID # \_\_\_\_\_  
No \_\_\_\_\_ Excavate and onsite remediation  
\_\_\_\_\_ Land Treatment  
\_\_\_\_\_ Bioremediation (or enhanced bioremediation)  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Other \_\_\_\_\_

## Groundwater Remediation Summary

Yes \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
Yes \_\_\_\_\_ Chemical oxidation  
No \_\_\_\_\_ Air sparge / Soil vapor extraction  
Yes \_\_\_\_\_ Natural Attenuation  
Yes \_\_\_\_\_ Other MicroBlaze® Application (2011);  
TPH-ENHANCED® Application  
and BOS 200® Injection (2019)

## 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 MW01 through MW06 were sampled on a quarterly basis for organic analytes for groundwater in Table 915-1. Removal of sampling inorganic analytes and the removal of groundwater monitoring wells MW07, MW08, MW09, MW11R, MW12R, and MW13 from the quarterly monitoring program were approved by the ECMC in the Form 27 Supplemental dated March 8, 2023 (Document No. 403311834). The removal of groundwater monitoring well MW05 from the quarterly monitoring program was approved by the ECMC in the Form 27 Supplemental dated February 29, 2024 (Document No. 403686389).

As of the June 2024 quarterly monitoring event, all monitoring wells have been in compliance with the ECMC Table 915-1 allowable levels for four quarters and no additional groundwater monitoring has been conducted.

## 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: \$ 60000

### 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:

NA

Volume of E&P Waste (solid) in cubic yards 285

E&P waste (solid) description Petroleum hydrocarbon impacted soil

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Buffalo Ridge Landfill in Keenesburg, 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? No

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? Yes

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 was restored to its pre-release grade. The Kerr-McGee production facility was reconstructed.

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? \_\_\_\_\_

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. 02/08/2011

Actual Spill or Release date, or date of discovery. 02/08/2011

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 02/10/2011

Proposed site investigation commencement. 02/10/2011

Proposed completion of site investigation. 10/29/2025

### **REMEDIAL ACTION DATES**

Proposed start date of Remediation. 02/10/2011

Proposed date of completion of Remediation. 05/03/2027

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**

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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: 5719

**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**

404189149	SITE MAP
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Total Attach: 1 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)