

State of Colorado  
Energy & Carbon Management Commission

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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) 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 #: 21234 Initial Form 27 Document #: 402897793

## 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: WELL	Facility ID: _____	API #: 123-12700	County Name: WELD
Facility Name: BIERIG-UPRR 42-35		Latitude: 40.270239	Longitude: -104.737533
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: SENE	Sec: 35	Twp: 4N	Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE	Facility ID: 482210	API #: _____	County Name: WELD
Facility Name: Berig UPRR 42-35 Wellhead		Latitude: 40.270239	Longitude: -104.737533
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: SENE	Sec: 35	Twp: 4N	Range: 66W Meridian: 6 Sensitive Area? Yes

## SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Surface Water

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

Platte Valley Ditch located approximately 180 feet (ft) west, 350 ft south, and 800 ft east; Agriculture located approximately 325 ft southwest; Groundwater at approximately 3 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	To be determined.	Groundwater Samples/Lab 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.

Wellhead cut and cap operations were completed at the Berig UPRR 42-35 1 Wellhead on May 19, 2022. Groundwater was encountered in the wellhead cut and cap excavation. Visual inspection and field screening of soil around the wellhead and associated pumping equipment were conducted following cut and cap operations, and a soil sample (B01 @6'-WP) was submitted for analysis of full list Table 915-1 constituents to determine if a release occurred. Laboratory analytical results indicated that 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene (TMBs), polycyclic aromatic hydrocarbon (PAH), sodium adsorption ratio (SAR), and pH impacts exceeding Table 915-1 allowable levels and existing background data existed at the former wellhead location. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403055502) was submitted on May 23, 2022, and the ECMC issued Spill/Release Point ID 482210. The flowline associated with the wellhead was removed between May 20 and July 22, 2022, and soil samples were collected from the locations where there was field indication of impact (FL01@5' and FL02@5'). The samples were submitted for laboratory analysis of full list Table 915-1 constituents to determine if a release occurred. Laboratory analytical results indicated that PAH impacts exceeding the ECMC Table 915-1 allowable levels were present at the FL01@5' location. The wellhead excavation and flowline are depicted on Figures 1 and 2, respectively. 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 ):

From May 19 through July 25, 2022, excavation activities were conducted to address remaining soil impacts at the B01 @6'-WP and FL01@5' locations and confirmation soil samples were collected from the base and sidewalls of the final excavation extent of the cut and cap excavation at depths of approximately 7 ft bgs and 4 ft bgs, respectively, and the base and sidewalls of the final extent of the FL01@5' excavation at approximately 6 ft bgs and 4 ft bgs, respectively. The confirmation soil samples were submitted for laboratory analysis of the excavation-specific waste profile following the ECMC-approved method at the time of sampling. Analytical results indicated that constituent concentrations in the soil samples collected from the final excavation extents were in compliance with the applicable ECMC Table 915-1 standards or within the analytical variability of background levels.

#### Proposed Groundwater Sampling

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

Groundwater was encountered in the wellhead cut and cap excavation and in the flowline trench at approximately 5 and 3 ft bgs, respectively. Two groundwater samples (GW01 and GW02) were collected and submitted for laboratory analysis of full list Table 915-1 constituents in groundwater. Three background groundwater samples were also collected for analysis of Table 915-1 inorganic parameters in groundwater. Laboratory analytical results indicated that benzene, 1,2,4-TMB, and/or sulfate ion concentrations exceeding the ECMC Table 915-1 allowable levels or background levels were present at both locations. The groundwater sample analytical results are summarized in Table 3. The groundwater sample and background groundwater sample locations are depicted on Figures 1 and 2.

## 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 May 19, 2022, visual inspection and/or field screening of soils were conducted at four sidewall locations within the cut and cap excavation area and four locations at the ground surface adjacent to the excavation. Based on the inspection and screening results, hydrocarbon-impacted soil was not observed at the screening locations, and no soil samples were submitted for laboratory analysis from these areas, in accordance with the ECMC Operator Guidance.

Following cut and cap operations, a soil gas survey was conducted. Five soil vapor points were installed adjacent to the former wellhead location. GEM 5000 field readings were all non-detect for methane at all soil vapor points. The soil vapor point locations are illustrated on Figure 1.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 17

Number of soil samples exceeding 915-1 11

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

Approximate areal extent (square feet) 610

### NA / ND

-- Highest concentration of TPH (mg/kg) 152

-- Highest concentration of SAR 9.53

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 7

### Groundwater

Number of groundwater samples collected 2

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 3

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 2

-- Highest concentration of Benzene (µg/l) 47.9

-- Highest concentration of Toluene (µg/l) 153

-- Highest concentration of Ethylbenzene (µg/l) 19

-- Highest concentration of Xylene (µg/l) 347

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?

Six background soil samples were collected from the native material outside of the wellhead cut and cap excavation. The background soil samples were submitted for laboratory analysis of pH, specific conductivity (EC), SAR, boron and Table 915-1 metals, using ECMC-approved methods. Laboratory analytical results indicate that levels of pH, arsenic, barium, and selenium are naturally high in the native soil. The background soil sample laboratory analytical results are summarized in Table 2.

Three background groundwater samples (BGGW01 through BGGW03) were collected for laboratory analysis of Table 915-1 inorganic parameters. The background groundwater sample 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?

Groundwater monitoring wells will be installed to delineate the extent and magnitude of any remaining dissolved-phase impacts. The well installation is currently scheduled for September 2024.

## 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 240 cubic yards of impacted soil were removed from the site and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 630 bbls of impacted groundwater 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.

Laboratory analytical results indicate that soil at the final extents of the excavation is within the ECMC Table 915-1 allowable levels or within the analytical variability of background levels.

In order to delineate the extent and magnitude of any remaining impacts, monitoring wells will be installed in the source area, cross-gradient, and downgradient from the previously-identified groundwater impacts. Groundwater monitoring will be conducted on a quarterly basis.

### Soil Remediation Summary

☐ In Situ

☒ Ex Situ

Bioremediation ( or enhanced bioremediation )

Yes Excavate and offsite disposal

Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) 240

Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or ECMC Facility ID # 149007

Natural Attenuation

No 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.

In order to delineate the extent and magnitude of any remaining impacts, monitoring wells will be installed in the source area, cross-gradient, and downgradient from the previously-identified groundwater impacts. Following installation, the groundwater monitoring wells will be sampled for full list Table 915-1 constituents in groundwater until an analyte reduction request is warranted. Any reduction in the analyte list will be requested in a subsequent Form 27 supplemental report for ECMC approval.

Groundwater monitoring will be conducted 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 240 cubic yards of impacted soil were removed from the site and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 240

E&P waste (solid) description Impacted soil

ECMC Disposal Facility ID #, if applicable: 149007

Non-ECMC Disposal Facility:

Volume of E&P Waste (liquid) in barrels 630

E&P waste (liquid) description Impacted water

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? 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. 05/20/2022

Actual Spill or Release date, or date of discovery. 05/20/2022

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 05/18/2022

Proposed site investigation commencement. 05/18/2022

Proposed completion of site investigation. 12/31/2024

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/20/2022

Proposed date of completion of Remediation. 12/31/2027

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**

A proposed monitoring well location figure will be included with the next quarterly Form 27.

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: 21234

**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**

403896109	SOIL SAMPLE LOCATION MAP
403896110	SOIL SAMPLE LOCATION MAP
403896112	ANALYTICAL RESULTS

Total Attach: 3 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)