

State of Colorado  
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109

Document Number:

403895194

Receive Date:

08/26/2024

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 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 #: 24484 Initial Form 27 Document #: 403116623

## 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 #: 123-17901	County Name: WELD
Facility Name: WADDLE 24-10J7	Latitude: 40.206020	Longitude: -104.837130	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWSE	Sec: 24	Twp: 3N	Range: 67W
Meridian: 6	Sensitive Area? Yes		

  

Facility Type: SPILL OR RELEASE	Facility ID: 482910	API #: _____	County Name: WELD
Facility Name: Waddle 24-10J7 Wellhead	Latitude: 40.206020	Longitude: -104.837130	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWSE	Sec: 24	Twp: 3N	Range: 67W
Meridian: 6	Sensitive Area? Yes		

## SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Surface Water and Livestock

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

Livestock surrounding; Surface water located approximately 1,100 feet (ft) west; Agriculture located approximately 200 ft north; Water wells located approximately 900 ft north and 1,300 ft southeast; Groundwater at approximately 2 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/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.

Wellhead cut and cap operations were completed at the Waddle 24-10J7 wellhead on August 26, 2022. Visual inspection and field screening of soils around the wellhead and associated pumping equipment was conducted following cut and cap operations, and a soil sample (B01@6'-WP) was submitted for analysis of 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 to determine if a release occurred. Laboratory analytical results indicated that all results were within the ECMC Table 915-1 allowable levels. The flowline associated with the wellhead and a portion of the flowline associated with the Birkle #24-15L wellhead were removed on August 26, 2022, and soil samples were collected from the locations where the flowline riser was disconnected from the separator (SEP-Riser@4'-WP) and from flowline potholes containing groundwater [FL01@3', FL02@3' (Birkle #24-15L), FL03@3' (Birkle #24-15L)]. Groundwater was identified in all excavations and potholes at approximately 2 ft bgs. The samples were submitted for laboratory analysis of either reduced list Table 915-1 or full list Table 915-1 constituents to determine if a release occurred. Analytical results indicated that arsenic, barium, and lead impacts exceeded Table 915-1 allowable levels and background were present at the SEP-Riser@4'-WP and FL03@3' (Birkle #24-15L) locations. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403150392) was submitted on September 1, 2022 and the ECMC issued Spill/Release Point ID 482910. The wellhead excavation and flowlines are depicted on Figure 1.

### 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 August 26, 2022, soil samples were collected from the base of the cut and cap excavation (B01@6'-WP), from the location where the flowline riser was disconnected from the separator (SEP-Riser@4'-WP), and from three flowline potholes where groundwater was observed [FL01@3', FL02@3' (Birkle #24-15L), FL03@3' (Birkle #24-15L)]. The samples were submitted for analysis of either reduced list or full list Table 915-1 constituents using ECMC-approved methods, as approved in the Form 27 Initial dated July 26, 2022 (Document No. 403116623). Results indicated that all samples collected during wellhead cut and cap and flowline removal activities were in compliance with ECMC Table 915-1 standards except for metals which will be addressed during groundwater monitoring, as approved in the Form 27 Supplementals dated November 30, 2022 (Document No. 403212198) and May 10, 2023 (Document No. 403333614). Therefore, further excavation was not warranted.

#### Proposed Groundwater Sampling

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

On August 26, 2022, five groundwater samples were collected from the wellhead excavation, flowline potholes, and separator riser excavation 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, samples GW03 and GW05, collected from the SEP-Riser@4'-WP and FL03@3' (Birkle #24-15L) locations, respectively, exceeded the ECMC Table 915-1 allowable levels for benzene. 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 August 26, 2022, visual inspection and/or field screening of soils were conducted at four sidewall locations within the cut and cap excavation area. 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.

On August 29, 2022, a soil gas survey was conducted at four soil vapor points installed adjacent to the former wellhead location following cut and cap operations. GEM 5000 field readings were all non-detect for methane at all soil vapor points.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 5

Number of soil samples exceeding 915-1 2

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

Approximate areal extent (square feet) 255

### NA / ND

-- Highest concentration of TPH (mg/kg) 223.3

-- Highest concentration of SAR 5.26

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 4

### Groundwater

Number of groundwater samples collected 5

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 2

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 2

-- Highest concentration of Benzene (µg/l) 35

-- Highest concentration of Toluene (µg/l) 90.9

-- Highest concentration of Ethylbenzene (µg/l) 8.94

-- Highest concentration of Xylene (µg/l) 148

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?

Three background soil samples (Native-BG01@4' through Native-BG03@4') were collected from native material adjacent to the wellhead cut and cap activities. The background soil samples were submitted for laboratory analysis of pH, EC, SAR, boron, and metals using ECMC-approved methods. Laboratory analytical results indicated that levels of arsenic are naturally high in the soil.

Two background groundwater samples (GW-BG01 and GW-BG02) were collected and submitted for Table 915-1 inorganic parameters. The background groundwater sample results are summarized in Table 1. The background groundwater sample locations are depicted on Figure 1.

☐ 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?

## 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.

Laboratory analytical results indicate that reduced list Table 915-1 constituent concentrations in soil samples collected from the base of the cut and cap excavation (B01@6'-WP) and from flowline potholes FL01@3' and FL02@3' (Birkle #24-15L) were in compliance with the ECMC Table 915-1 standards or below the analytical variability of background. Laboratory analytical results indicate that constituent concentrations in soil samples collected from SEP-Riser@4'-WP and FL03@3' (Birkle #24-15L) were in compliance with ECMC Table 915-1 standards except for metals which will be addressed during groundwater monitoring, as approved in the Form 27 Supplementals dated November 30, 2022 (Document No. 403212198) and May 10, 2023 (Document No. 403333614); therefore, no soils were removed from the site during wellhead cut and cap or flowline removal operations. The excavation areas were backfilled and contoured to match pre-existing site 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.

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. The proposed groundwater monitoring well locations are depicted on Figure 2. Final well locations will be determined based on access and field observation at the time of installation.

Per the condition of approval issued by the ECMC to Document No. 403626016, one soil sample will be collected from each soil boring advanced during well installation and the samples will be submitted for laboratory analysis.

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

### Soil Remediation Summary

☐ In Situ

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

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

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

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

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

☐ Ex Situ

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

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

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

\_\_\_\_\_ 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.

Following well installation, groundwater samples will be collected from the monitoring wells on a quarterly basis and will be submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, total dissolved solids, chloride ion, and sulfate ion per ECMC Rule 912.a. Due to the metal exceedances in the proposed soil to be left in place (as discussed in the Proposed Soil Sampling section), the groundwater samples will also be analyzed for dissolved arsenic, barium, cadmium, and lead in accordance with the Water Quality Control Commission (WQCC) Regulation 41. Groundwater monitoring for metals will be conducted for four consecutive quarters and a request to remove metals from the analyte list will be submitted if all results come back below the WQCC allowable levels, monitoring, as approved in the Form 27 Supplemental dated May 10, 2023 (Document No. 403333614). The laboratory analytical and assessment results will be summarized in a supplemental Form 27.

## 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?  No

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

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

E&P waste (solid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

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?

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. Timeliness of reclamation initiation and completion will be subject to 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. 03/21/2026

Proposed date of completion of Reclamation. 04/21/2026

## 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. 08/29/2022

Actual Spill or Release date, or date of discovery. 08/29/2022

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/26/2022

Proposed site investigation commencement. 08/26/2022

Proposed completion of site investigation. 12/31/2024

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 08/26/2022

Proposed date of completion of Remediation. 12/18/2026

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**

Monitoring wells currently being installed on August 26, 2024.

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: 08/26/2024

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: Taylor Robinson

Date: 10/18/2024

Remediation Project Number: 24484

**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**

403895194	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403896086	SITE MAP
403896089	GROUND WATER SAMPLE LOCATION
403896091	ANALYTICAL RESULTS
403963238	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 5 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)