

State of Colorado  
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
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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) 515-1110
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Macy Kiel	Email: DJRemediation_Forms@oxy.com	Mobile: ( )

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 25336 Initial Form 27 Document #: 403186801

## 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 #: 123-10411	County Name: WELD
Facility Name: BERRY 1	Latitude: 40.243690	Longitude: -104.908600	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENE	Sec: 8	Twp: 3N	Range: 67W
Meridian: 6	Sensitive Area? Yes		

Facility Type: SPILL OR RELEASE	Facility ID: 483097	API #: _____	County Name: WELD
Facility Name: Berry 1 Wellhead	Latitude: 40.243690	Longitude: -104.908600	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENE	Sec: 8	Twp: 3N	Range: 67W
Meridian: 6	Sensitive Area? Yes		

## **SITE CONDITIONS**

General soil type - USCS Classifications OH

Most Sensitive Adjacent Land Use Crop land

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**

Domestic water well: none  
Surface water: approximately 380' SW  
Wetlands: an area with wetland characteristics is located approximately 340' SW  
Spring: none  
Livestock: none  
Occupied Building: none  
High Priority Habitats: within Mule Deer Severe Winter Range

## **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
No	GROUNDWATER	No groundwater encountered	Groundwater samples/laboratory analytical results
No	SOILS	No impacts - verification samples	inspection/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 and flowline removal activities were completed at the Berry 1 wellhead on October 17, 2022, through January 19, 2024. Groundwater was not encountered in the wellhead cut and cap or flowline removal pothole excavation areas. Visual inspection and field screening of soils around the well, associated pumping equipment, and flowline potholes was conducted following wellhead cut and cap operations and flowline removal activities and thirteen soil samples were submitted for laboratory analysis to determine if a release occurred. Laboratory analytical results indicated that soil samples WH-B01@6', WH-S01@5', and WH-W01@5' contained naphthalene, total petroleum hydrocarbons (TPH), 1-methylnaphthalene, benzo(a)anthracene, pH, arsenic, barium, and lead concentrations exceeding the applicable ECMC Table 915-1 standards and site-specific background limits. As such, a Form 19-Initial/Supplemental Spill/Release Report (ECMC Document No. 403186801) was submitted on October 19, 2022, and the ECMC issued Spill/Release Point ID 483097. A topographic Site Location Map showing the geographic setting of the site location is provided as Figure 1. Soil sample location and field screening data are presented in Table 1. The soil sample and field screening locations are illustrated on Figures 2 and 3. The laboratory analytical report is provided as Attachment A. The field notes and photographic log are provided as Attachment B.

## 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 10/17/22-2/8/24, soil samples were collected from the base of the cut and cap excavation area, from the locations where the flowline risers were disconnected at the wellhead/separator, and at flowline directional changes. The soil samples were submitted for analysis of BTEX, naph., TMBs, TPH, pH, EC, SAR, and boron using ECMC approved methods, as approved in the Form 27-Initial (Document No.403409456) dated 10/5/22. Analytical results indicated that multiple soil samples contained naph., TPH, 1-methylnaphthalene, benzo(a)anthracene, pH, arsenic, and/or lead concentrations exceeding the applicable ECMC Table 915-1 standards and background limits. As such, verification soil samples WH-B01-01@6', WH-S01-01@5', WH-W01-01@5', FL-B08-01@4', FL-B10-01@4', FL-B12-01@4', and FL-B21-01@4' were collected to verify the soil impacts. Analytical results indicated that constituent concentrations in the soil samples were in compliance with ECMC Table 915-1 standards and/or within background limits.

### Proposed Groundwater Sampling

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

Groundwater was not encountered during wellhead cut and cap operations or flowline removal activities.

### 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 October 17, 2022, through January 19, 2024, soil screening was conducted at 4 locations at the ground surface adjacent to the wellhead excavation and at 14 flowline removal potholes. 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 October 19, 2022, a soil gas survey was conducted at 5 soil vapor points (SVP-01 - SVP-05) installed adjacent to the former wellhead. GEM 5000 field readings indicated that methane was present, and soil vapor samples were subsequently collected from all 5 SVPs. Results from the gas composition analysis indicated that the detected methane was biogenic, and no further investigation is needed.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 20

Number of soil samples exceeding 915-1 16

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

Approximate areal extent (square feet) 0

### NA / ND

-- Highest concentration of TPH (mg/kg) 983.08

-- Highest concentration of SAR 3.91

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 0

### Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet)

Number of groundwater monitoring wells installed

Number of groundwater samples exceeding 915-1

Highest concentration of Benzene (µg/l)

Highest concentration of Toluene (µg/l)

Highest concentration of Ethylbenzene (µg/l)

Highest concentration of Xylene (µg/l)

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?

Background soil samples WH-BG01@3'-WH-BG03@3', WH-BG01@6'-WH-BG03@6' were collected from native material adjacent to the wellhead cut and cap excavation. Additional flowline background soil samples FL-BG01@4'-FL-BG05@4' were collected from native material adjacent to the former flowline. The background soil samples were submitted for laboratory analysis of the soil suitability for reclamation parameters and/or ECMC Table 915-1 metals using standard methods appropriate for detecting target analytes in Table 915-1. Analytical results for the background soil samples are presented in Table 3 and 5. Background sample locations are illustrated on Figures 2 and 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?

## 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 indicated that multiple soil samples collected during the initial assessment activities contained naph., TPH, 1-methylnaphthalene, benzo(a)anthracene, pH, arsenic, and/or lead concentrations exceeding the applicable ECMC Table 915-1 standards and site-specific background limits. However, verification soil samples WH-B01-01@6', WH-S01-01@5', WH-W01-01@5', FL-B08-01@4', FL-B10-01@4', FL-B12-01@4', and FL-B21-01@4' were collected at each the impacted soil sample locations to verify the soil impacts. Analytical results indicated that constituent concentrations in the seven verification soil samples were in compliance with ECMC Table 915-1 standards and/or within background limits. Analytical results indicated that constituent concentrations in the remaining soil samples were in compliance with ECMC Table 915-1 standards and/or within background limits. The excavation areas will be backfilled and contoured to match preexisting site conditions.

## REMEDATION 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 indicated that multiple soil samples collected during the initial assessment activities contained naph., TPH, 1-methylnaphthalene, benzo(a)anthracene, pH, arsenic, and/or lead concentrations exceeding the applicable ECMC Table 915-1 standards and site-specific background limits. However, verification soil samples WH-B01-01@6', WH-S01-01@5', WH-W01-01@5', FL-B08-01@4', FL-B10-01@4', FL-B12-01@4', and FL-B21-01@4' were collected at each the impacted soil sample locations to verify the soil impacts. Analytical results indicated that constituent concentrations in the seven verification soil samples were in compliance with ECMC Table 915-1 standards and/or within background limits. Analytical results indicated that constituent concentrations in the remaining soil samples were in compliance with ECMC Table 915-1 standards and/or within background limits. Groundwater was not encountered during wellhead cut and cap operations or flowline removal activities. Based on the analytical and soil screening data presented herein, assessment is complete at this site and no further activities are required. As such, Kerr-McGee is requesting a No Further Action (NFA) determination for this location.

Soil Remediation Summary

<input type="checkbox"/> In Situ	<input checked="" type="checkbox"/> Ex Situ
_____ Bioremediation ( or enhanced bioremediation )	Yes _____ Excavate and offsite disposal
_____ Chemical oxidation	_____ If Yes: Estimated Volume (Cubic Yards) _____ 20
_____ 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.

## REMEDIATION PROGRESS UPDATE

### PERIODIC REPORTING

#### Approved Reporting Schedule:

☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other Final Report

#### ☐ 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 NFA Request

### 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 downwards 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: \$ 0

### 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 20

E&P waste (solid) description impacted soil

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Buffalo Ridge Landfill located in Erie

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? Yes

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? 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 will be reclaimed in accordance with ECMC 1000 Series Reclamation Rules. Timeliness of reclamation initiation 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. 08/16/2025

Proposed date of completion of Reclamation. 09/16/2025

## 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. 08/11/2022

Actual Spill or Release date, or date of discovery. 10/18/2022

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/17/2022

Proposed site investigation commencement. 10/17/2022

Proposed completion of site investigation. 02/08/2024

### REMEDIAL ACTION DATES

Proposed start date of Remediation. \_\_\_\_\_

Proposed date of completion of Remediation. \_\_\_\_\_

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**

Per the COA on the approved Form 27-Site Investigation and Remediation Workplan Supplemental (Document No. 403389951) dated May 3, 2023, flowline soil sampling and field screening activities have been completed. Analytical results indicated that constituent concentrations in the soil samples were in compliance with ECMC Table 915-1 standards and/or within site-specific background limits. Based on the analytical and soil screening data presented herein, assessment is complete at this site and no further activities are required. As such, Kerr-McGee is requesting a No Further Action (NFA) determination for this location.

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

Signed: Macy Kiel

Title: HSE Advisor

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: 25336

**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**

403922954	PHOTO DOCUMENTATION
403922955	SITE MAP
403922956	SOIL SAMPLE LOCATION MAP
403922958	SOIL SAMPLE LOCATION MAP
403922960	ANALYTICAL RESULTS
403922963	ANALYTICAL RESULTS

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)