

**State of Colorado**  
**Energy & Carbon Management Commission**

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Receive Date:  
09/27/2023

Report taken by:  
Laurel Anderson

**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 COGCC 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: <u>KERR MCGEE OIL &amp; GAS ONSHORE LP</u>	Operator No: <u>47120</u>	<b>Phone Numbers</b>
Address: <u>P O BOX 173779</u>		Phone: <u>(970) 336-3500</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80217-3779</u>		Mobile: <u>( )</u>
Contact Person: <u>Phillip Hamlin</u>	Email: <u>Phillip_Hamlin@oxy.com</u>	

**PROJECT, PURPOSE & SITE INFORMATION**

**PROJECT INFORMATION**

Remediation Project #: 10875 Initial Form 27 Document #: 401466350

**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: <u>SPILL OR RELEASE</u>	Facility ID: <u>453126</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>SPILL/RELEASE POINT</u>	Latitude: <u>40.071457</u>	Longitude: <u>-104.983087</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NENE</u>	Sec: <u>10</u>	Twp: <u>1N</u>	Range: <u>68W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

**SITE CONDITIONS**

General soil type - USCS Classifications CL 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**

An irrigation ditch is located approximately 1,225 feet west, and a pond is located approximately 1,250 feet northwest of the release location. Multiple buildings are located within ¼ mile of the release location.

# 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 sampling and laboratory analysis
Yes	SOILS	98' (E-W) x 84' (N-S) x 14' bgs	Excavation, soil sampling, and laboratory 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.

On September 20, 2017, historical impacts were discovered during third-party maintenance operations at the CPC 41-10 #1, Champlin 31-10 #3, 32-10 #2, 42-10 #4 production facility. The facility was shut-in, affected infrastructure was removed, and excavation activities were initiated. On November 6, 2017, groundwater was observed seeping into the excavation at approximately 13 feet below ground surface (bgs). The ECMC issued Spill/Release Point ID 453126 for this release. On June 13, 2019, during abandonment of the adjacent production facility, additional excavation activities were conducted to the south of the 2017 excavation area.

## 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 ):

Soil samples were collected during the 2017 excavation activities, as described in the Initial Form 27 (Document No. 401466350), and during the 2019 excavation activities, as described in a Supplemental Form 27 update (Document No. 402202729). Based on the data presented, impacted soils in the 2017 and 2019 excavation areas were remediated to be in full compliance with the Table 910-1 standards, except for the SAR values in samples B15@14' and B16@14', which were collected below the designated root zone (0-3 feet bgs). Based on the date of discovery and initiation of excavation activities (September 20, 2017), the Table 910-1 soil standards have been applied to the soil analytical results at this location.

### Proposed Groundwater Sampling

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

Between May 1, 2018 and March 1, 2019, 19 temporary groundwater monitoring wells (BH01-BH19) were installed to further assess the extent of groundwater impacts. Monitoring wells BH01 - BH06, BH08, BH14, and BH18 were destroyed during abandonment and reclamation activities at an adjacent production facility. The remaining monitoring wells (BH07, BH09-BH13, BH15-BH17, and BH19) were abandoned on June 12, 2020 per landowner request. On July 6 and 7, 2020, 16 replacement monitoring wells (BH01R-BH11R, BH13R, BH15R-BH17R, and BH19R) were installed under an approved monitoring well reduction request (Document No. 402407049). Quarterly groundwater monitoring was initiated on June 29, 2018, and is ongoing at the 16 replacement monitoring wells locations. Groundwater analytical data is presented in Table 1. The groundwater sample locations are illustrated on Figure 1. The laboratory analytical reports for the previous four quarters of groundwater monitoring are provided as Attachment A.

### 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 ):

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 56  
Number of soil samples exceeding 915-1 19  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 4590

### NA / ND

-- Highest concentration of TPH (mg/kg) 1825  
-- Highest concentration of SAR 16.65  
BTEX > 915-1 Yes  
Vertical Extent > 915-1 (in feet) 14

### Groundwater

Number of groundwater samples collected 329  
Was extent of groundwater contaminated delineated? Yes  
Depth to groundwater (below ground surface, in feet) 6  
Number of groundwater monitoring wells installed 35  
Number of groundwater samples exceeding 915-1 42

-- Highest concentration of Benzene (µg/l) 176  
ND Highest concentration of Toluene (µg/l)           
-- Highest concentration of Ethylbenzene (µg/l) 48.7  
-- Highest concentration of Xylene (µg/l) 27.8  
NA Highest concentration of Methane (mg/l)         

### Surface Water

0 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?

Soil impacted above the Table 910-1 standards extended laterally beyond the lease boundary and was removed during excavation activities. Impacted groundwater has historically been detected in off-site temporary groundwater monitoring wells BH02, BH02R, BH04, BH05, BH06, BH09, BH10, BH10R, and BH11.

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?

## 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.

Between September 20 and November 9, 2017, approximately 1,390 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal. On June 13, 2019, approximately 370 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal.

## REMEDICATION 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 data indicate that impacted soils in the 2017 and 2019 excavation areas have been remediated to be in full compliance with the Table 910-1 standards, except for the SAR values in samples B15@14' and B16@14', which were collected below the designated root zone. Quarterly groundwater monitoring is ongoing and will be continued until concentrations remain in compliance with the ECMC Table 915-1 standards. Additional remedial activities may be evaluated, as necessary, to address potential remaining groundwater impacts. Estimated time to attain NFA is TBD based on the groundwater concentrations, the extent of impacted groundwater, and the efficacy of the selected remedial technologies.

## 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) 1760

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

No Excavate and onsite remediation

\_\_\_\_\_ Land Treatment

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

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

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

**Groundwater Remediation Summary**

No Bioremediation ( or enhanced bioremediation )

No Chemical oxidation

No Air sparge / Soil vapor extraction

Yes Natural Attenuation

No 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.

Between May 1, 2018 and March 1, 2019, 19 temporary groundwater monitoring wells (BH01 - BH19) were installed to further assess the extent of groundwater impacts. These monitoring wells were subsequently destroyed or abandoned as described herein. On July 6 and 7, 2020, 16 replacement monitoring wells (BH01R - BH11R, BH13R, BH15R - BH17R, and BH19R) were installed under an approved reduction request (Document No. 402407049). Up/cross-gradient and historically compliant monitoring wells BH07R and BH09R were selected as background locations for comparison to inorganic groundwater standards in Table 915-1. Based on a comparison to site-specific background concentrations, inorganic constituents in all 16 existing site monitoring wells were in compliance with Table 915-1 standards for more than four consecutive quarters. As such, Kerr-McGee is requesting the removal of the Table 915-1 inorganic constituents (chloride, sulfate, and total dissolved solids) from the groundwater monitoring program at this location. Based on groundwater analytical results below ECMC standards for more than four consecutive quarters, Kerr-McGee is requesting the removal of temporary monitoring wells BH07R - BH09R, BH13R, BH15R, and BH17R from the groundwater monitoring program. Upon ECMC approval, these monitoring wells will be abandoned. Pending ECMC approval of this Form 27, the 10 temporary monitoring wells remaining (BH01R - BH06R, BH10R, BH11R, BH16R, and BH19R) will continue to be sampled on a quarterly basis and submitted for laboratory analysis of the Table 915-1 organic constituents (BTEX, naphthalene, 1,2,4- and 1,3,5-TMB). The temporary groundwater monitoring well locations are illustrated on Figure 1, a potentiometric surface contour map for the 3Q2023 is presented as Figure 2, and the proposed monitoring wells to be removed from the groundwater monitoring program are illustrated on Figure 3. Well completion logs for the temporary monitoring wells are provided in Attachment B.

# 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 Colorado Emergency 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: \$ 25000 \_\_\_\_\_

## 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 \_\_\_\_\_ 1760

E&P waste (solid) description \_\_\_\_\_ Impacted soil \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: \_\_\_\_\_ Front Range Landfill - Erie, Colorado \_\_\_\_\_

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_ 0

E&P waste (liquid) description \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC 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 COGCC 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 has been restored to its pre-release grade. Kerr-McGee will conduct reclamation activities in accordance with ECMC 1000 Series Rules.

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. 01/31/2025

Proposed date of completion of Reclamation. 02/28/2025

## 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. 09/22/2017

Actual Spill or Release date, or date of discovery. 09/20/2017

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/20/2017

Proposed site investigation commencement. 09/20/2017

Proposed completion of site investigation. 07/07/2020

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 09/20/2017

Proposed date of completion of Remediation. 02/28/2024

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**

Kerr-McGee is requesting the removal of the Table 915-1 inorganic constituents (chloride, sulfate, and total dissolved solids) from the ongoing quarterly groundwater monitoring program at this location, as described herein. Based on groundwater analytical results below ECMC standards for more than four consecutive quarters, Kerr-McGee is requesting the removal of temporary monitoring wells BH07R - BH09R, BH13R, BH15R, and BH17R from the groundwater monitoring program, as described herein. Pending ECMC approval of this Form 27, the 10 temporary monitoring wells remaining (BH01R - BH06R, BH10R, BH11R, BH16R, and BH19R) will continue to be sampled on a quarterly basis and submitted for laboratory analysis of the Table 915-1 organic constituents (BTEX, naphthalene, 1,2,4- and 1,3,5-trimethylbenzene). Based on the previously approved reporting frequency, Kerr-McGee will continue to provide annual Form 27-Supplemental updates for this site.

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

Signed: Phillip Hamlin

Title: Senior Environmental Rep

Submit Date: 09/27/2023

Email: Phillip\_Hamlin@oxy.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: Laurel Anderson

Date: 01/03/2024

Remediation Project Number: 10875

**COA Type****Description**

	Operator has referenced prior COGCC (Now ECMC) Rule 910 for cleanup standards. Per Rule 915.f.: If Remediation at a site subject to an open Form 19 or Form 27 is not completed by January 15,2022, then the Operator will comply with the current version of Table 915-1. Operator shall collect confirmation soil samples prior to requesting closure of this remediation project.
	ECMC agrees to the removal of BH09R, BH13R, BH07R, and BH17R from the groundwater monitoring program; however, Operator shall continue to sample BH08R and BH15R for use as a point of compliance wells. If future data indicate the need for additional site characterization or establishing point of compliance, ECMC may require additional monitoring wells be returned to the program.
2 COAs	

**Attachment Check 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**

403532268	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403532313	LOGS
403532315	SITE MAP
403532316	GROUND WATER ELEVATION MAP
403532319	SITE MAP
403532321	ANALYTICAL RESULTS
403532328	IMPLEMENTATION SCHEDULE
403532330	ANALYTICAL RESULTS
403642952	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 9 Files

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

Environmental	ECMC agrees to the Operator's request to remove inorganics from the monitoring program.	01/03/2024
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Total: 1 comment(s)