

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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Report taken by:

Alexander Ahmadian

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) 336-3500
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Phillip Hamlin	Email: Phillip_Hamlin@oxy.com	Mobile: ()

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

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 ECMC 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).

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 groundwater monitoring wells (BH01-BH19) were installed to further assess the extent of groundwater impacts. During adjacent decommissioning activities, nine wells were destroyed and in June 2020 the remaining 10 were abandoned at LO request. On July 6 and 7, 2020, 16 replacement monitoring wells (BH01R-BH11R, BH13R, BH15R-BH17R, and BH19R) were installed under an approved Form 27 - Supplemental (Document No. 402407049). On February 21, 2024, 4 monitoring wells (BH09R, BH13R, BH07R, BH17R) were abandoned per a monitoring well reduction request in the approved Form 27 (Document No. 403532268). Quarterly groundwater monitoring was initiated on June 29, 2018, and is ongoing at the remaining 12 monitoring wells. Groundwater analytical data is presented in Table 1, groundwater sample locations are illustrated on Figure 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):

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 381
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 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.

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 data indicate that impacted soils in the 2017 and 2019 excavation areas have been remediated to be in full compliance with the ECOM standards at the time of sampling, 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 ECOM Table 915-1 standards. Additional remedial activities may be evaluated, as necessary, to address potential remaining groundwater impacts.

Soil Remediation Summary

☐ In Situ

☒ Ex Situ

<input type="checkbox"/> Bioremediation (or enhanced bioremediation)	<input checked="" type="checkbox"/> Yes	Excavate and offsite disposal
<input type="checkbox"/> Chemical oxidation	<input type="checkbox"/> If Yes: Estimated Volume (Cubic Yards)	1760
<input type="checkbox"/> Air sparge / Soil vapor extraction	<input type="checkbox"/> Name of Licensed Disposal Facility or ECMC Facility ID #	
<input type="checkbox"/> Natural Attenuation	<input type="checkbox"/> No	Excavate and onsite remediation
<input type="checkbox"/> Other	<input type="checkbox"/> Land Treatment	
	<input type="checkbox"/> Bioremediation (or enhanced bioremediation)	
	<input type="checkbox"/> Chemical oxidation	
	<input type="checkbox"/> Other	

Groundwater Remediation Summary

<input type="checkbox"/> No	Bioremediation (or enhanced bioremediation)
<input type="checkbox"/> No	Chemical oxidation
<input type="checkbox"/> No	Air sparge / Soil vapor extraction
<input checked="" type="checkbox"/> Yes	Natural Attenuation
<input type="checkbox"/> 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.

Monitoring wells BH01R - BH06R, BH08R, BH10R, BH11R, BH15R, BH16R, and BH19R are sampled on a quarterly basis for Table 915-1 organic constituents in groundwater. The request to cease sampling for Table915-1 inorganic constituents (TDS, Chloride, Sulfate) was approved in the Form 27 Supplemental Document No. 403532268. The monitoring well reduction request to remove BH09R, BH13R, BH07R, and BH17R was granted by the ECMC in the approval for Form 27 Supplemental Document No. 403532268. The groundwater monitoring well locations are illustrated on Figure 1. A groundwater elevation contour map generated using the August 2024 gauging data is provided as Figure 2. The laboratory reports for the November 2023, February 2024, May 2024, and August 2024 sampling events are attached.

Groundwater monitoring will continue on a quarterly basis until No Further Action 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 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

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Front Range Landfill - Erie, 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 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? _____

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. 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. 02/28/2026

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

Kerr McGee requested an analyte reduction for inorganic constituents (TDS, Chloride, Sulfate), which was approved in the Form 27-Supplemental (Document No. 403532268). On February 21, 2024, 4 monitoring wells (BH09R, BH13R, BH07R, BH17R) were abandoned as per the approved Form 27-Supplemental (Document No. 403532268). The 12 remaining temporary monitoring wells (BH01R - BH06R, BH08R, BH10R, BH11R, BH15R, 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). 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: 11/19/2024

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: Alexander Ahmadian

Date: 02/05/2025

Remediation Project Number: 10875

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**

403912480	FORM 27-SUPPLEMENTAL-SUBMITTED
403999426	ANALYTICAL RESULTS
403999427	ANALYTICAL RESULTS
403999434	ANALYTICAL RESULTS
403999436	ANALYTICAL RESULTS
403999438	SITE MAP
403999439	GROUND WATER ELEVATION MAP
403999654	ANALYTICAL RESULTS

Total Attach: 8 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)