

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Grace Rollins

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 Phone: (970) 336-3500 Mobile: ()
Address: P O BOX 173779		
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Phil Hamlin	Email: Phillip_Hamlin@oxy.com	

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: 68W 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.

DENIED

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 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 (0-3 feet bgs). Soil analytical data is presented in Table 1. The soil sample locations are depicted on Figure 1. The laboratory reports are attached.

Proposed Groundwater Sampling

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

On November 6, 2017, one groundwater sample (GW01) was collected from the excavation and submitted for analysis of benzene, toluene, ethylbenzene, and xylenes. Analytical results indicated that benzene exceeding the ECMC allowable level was present.

Between May 1, 2018 and March 1, 2019, 19 groundwater monitoring wells (BH01-BH19) were installed to 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 (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. Groundwater analytical data is presented in Table 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):

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 391
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 allowable levels at the time of sampling 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 ECMC 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 was conducted through November 11, 2024. As of the fourth quarter of 2024 groundwater monitoring event, groundwater has been compliant with the ECMC Table 915-1 allowable levels for four or more quarters at all groundwater monitoring wells.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) 1760

_____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____

_____ Natural Attenuation

No Excavate and onsite remediation

_____ Other _____

_____ 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.

Monitoring wells BH01R - BH06R, BH08R, BH10R, BH11R, BH15R, BH16R, and BH19R were sampled on a quarterly basis for Table 915-1 organic constituents in groundwater. The request to cease sampling for Table 915-1 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 monitoring well locations are depicted on Figure 2. The Groundwater Elevation Contour Maps for the past four monitoring events are provided as Figures 3a through 3d. As of the November 2024 quarterly monitoring event, all monitoring wells have been in compliance with the ECMC Table 915-1 allowable levels for four or more quarters.

As no impacts due to exploration or production activities remain in the groundwater, a no further action (NFA) ruling is requested for this location. The groundwater analytical results are summarized in Table 2. The laboratory analytical reports for four compliance groundwater monitoring events are attached.

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 NFA Status 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 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: \$ 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 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? 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? 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 reseeded 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. 02/14/2025

Proposed date of completion of Reclamation. 02/14/2026

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. 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. 11/11/2024

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

Based on analytical and screening data provided herein, assessment is complete and Kerr-McGee is requesting an 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: Phil Hamlin

Title: Senior Environmental Rep.

Submit Date: 02/27/2025

Email: Phillip_Hamlin@oxy.com

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

ECMC Approved: _____

Date: _____

Remediation Project Number: 10875

COA Type**Description**

0 COA	
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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**

404094867	FORM 27 DENIED
404094889	ANALYTICAL RESULTS
404094890	ANALYTICAL RESULTS
404094891	ANALYTICAL RESULTS
404094892	ANALYTICAL RESULTS
404094893	ANALYTICAL RESULTS
404094895	ANALYTICAL RESULTS
404094899	ANALYTICAL RESULTS
404094901	ANALYTICAL RESULTS
404094902	ANALYTICAL RESULTS
404094905	ANALYTICAL RESULTS
404094908	ANALYTICAL RESULTS
404094909	ANALYTICAL RESULTS
404094910	ANALYTICAL RESULTS
404094912	ANALYTICAL RESULTS
404094914	ANALYTICAL RESULTS
404094915	ANALYTICAL RESULTS
404094916	ANALYTICAL RESULTS
404094917	ANALYTICAL RESULTS
404094918	ANALYTICAL RESULTS
404094920	ANALYTICAL RESULTS
404094921	ANALYTICAL RESULTS
404094930	SITE MAP
404094934	GROUND WATER ELEVATION MAP
404094935	GROUND WATER ELEVATION MAP
404096384	SOIL SAMPLE LOCATION MAP
404096386	GROUND WATER ELEVATION MAP

404096390	GROUND WATER ELEVATION MAP
404097056	ANALYTICAL RESULTS
404166314	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 30 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	Operator shall notify ECMC DJ Basin Supervisor Nikki Graber and ECMC Area EPS at least 72 prior to any soil boring, excavation, or sampling activities.	03/12/2025
Environmental	<p>ECMC has removed the closure request and denied the subject Form. Operator has referenced "ECMC standards at the time of sampling" (prior ECMC Rule 910) for soil 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.</p> <p>Operator is directed to submit a replacement Form 27 within 30 days proposing additional assessment and remediation with a detailed, standalone, future-oriented, implementation schedule.</p>	03/12/2025
Environmental	<p>Impacts to soil above Table 915-1 allowable levels have been documented in soil samples collected at the extent of previous remedial excavations (B11@13' and W09@12'), which appear to remain in situ. Operator shall collect soil samples adjacent to all historically impacted soil samples.</p> <p>Additionally, ECMC notes that soil samples were not collected for laboratory analysis during monitoring well installations. Operator shall collect soil samples adjacent to all historically impacted monitoring wells (BH02, BH04, BH05, BH06, BH09, BH10, and BH11 or their respective replacements) or which displayed elevated PID readings or visual/olfactory indications of impact at the time of installation (BH01, BH02, BH03, BH04, BH05, BH09, BH10, and BH13).</p> <p>Operator shall conduct a review of all project data and identify any additional data gaps. Operator shall propose additional site assessment (and timeline for completion) to document compliance with current ECMC Rule 915 on the replacement Supplemental Form 27. The soil samples shall be analyzed for TPH (C6-C36) and Table 915-1 Organic Compounds in Soil.</p> <p>Operator shall initiate the investigation within 45 days (by April 26, 2025).</p>	03/12/2025
Environmental	Operator will adopt a quarterly reporting schedule until the site investigation is complete and the implementation schedule can be updated.	03/11/2025

Total: 4 comment(s)