

State of Colorado
Energy & Carbon Management Commission

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Document Number:
404102968
Receive Date:
02/24/2025

Report taken by:
Nick Cholas

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: <u>KERR MCGEE OIL & GAS ONSHORE LP</u>	Operator No: <u>47120</u>	Phone Numbers
Address: <u>P O BOX 173779</u>		
City: <u>DENVER</u>	State: <u>CO</u>	Phone: <u>(970) 515-1161</u>
	Zip: <u>80217-3779</u>	Mobile: <u>()</u>
Contact Person: <u>Phil Hamlin</u>	Email: <u>Phillip_Hamlin@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 20436 Initial Form 27 Document #: 402787685

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: <u>LOCATION</u>	Facility ID: <u>323198</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>BIERIG-UPRR-64N66W 35SENE</u>	Latitude: <u>40.270239</u>	Longitude: <u>-104.737533</u>	
	** correct Lat/Long if needed: Latitude: <u>40.269559</u>	Longitude: <u>-104.737545</u>	
QtrQtr: <u>SENE</u>	Sec: <u>35</u>	Twp: <u>4N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>480249</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Berig 17-35</u>	Latitude: <u>40.269641</u>	Longitude: <u>-104.737630</u>	
	** correct Lat/Long if needed: Latitude: _____	Longitude: _____	
QtrQtr: <u>SENE</u>	Sec: <u>35</u>	Twp: <u>4N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Irrigation Canal
and Agriculture

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

Platte Valley Ditch located approximately 75 feet (ft) to the southwest; domestic well located approximately 1,200 ft southwest; Occupied buildings located approximately 1,300 ft southwest; Groundwater at approximately 1 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.

On July 28, 2021, a release daylighting from the subsurface at the Berig 17-35 location was discovered. The impacted soil was discovered while performing a pressure test of the oil dumpline between the separator and the tank at the facility. Approximately 3 gallons of oil were released during the pressure test. The release was reported to the ECMC in the Form 19 Initial dated July 29, 2021 (Document No. 402732214). The volume of the release is unknown. The impacted soil was excavated.

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):

Between July 29, 2021 and June 2, 2022, soil samples were collected from the facility excavation (see Figure 1). The soil samples were field screened for total volatile organic compounds using a photoionization detector (PID). Based on PID readings, select soil samples were submitted for laboratory analysis in accordance with ECMC Rule 911.a. The impacted soil was excavated. Analytical results indicated soil was in full compliance with Table 915-1 standards, or below background, at the extents of the excavation. The soil analytical results are summarized in Table 1.

Proposed Groundwater Sampling

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

On July 29, 2021, four groundwater samples were collected from the facility excavation and flowline potholes and submitted for Table 915-1 analyses. One background groundwater sample was also collected and submitted for Table 915-1 inorganic parameters. Based on the laboratory analytical results, samples GW01 and GW03 exceeded the ECMC Table 915-1 allowable levels for benzene, toluene, xylenes, 1,2,4-trimethylbenzene, and/or 1,3,5-trimethylbenzene. The excavation groundwater sample and background sample locations are depicted on Figure 2. The groundwater sample analytical results are summarized in Table 2.

Proposed Surface Water Sampling

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

On August 12, 2021, six ditch water samples (Ditch-01 through Ditch-06) and one surface water sample (SW-01) were collected and submitted for Table 915-1 organic parameters. Results were compared to ECMC Table 915-1 allowable levels for groundwater. All ditch water sample results were non-detect. Toluene was detected in surface water sample SW-01; however, the concentration of 2.57 ug/L is well below the Table 915-1 allowable level for groundwater of 560 ug/L. The surface water sample locations are depicted on Figure 3. The surface water analytical results are presented in Table 3.

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 98
Number of soil samples exceeding 915-1 37
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 19886

NA / ND

-- Highest concentration of TPH (mg/kg) 1468
-- Highest concentration of SAR 421
BTEX > 915-1 Yes
Vertical Extent > 915-1 (in feet) 13

Groundwater

Number of groundwater samples collected 36
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 1
Number of groundwater monitoring wells installed 8
Number of groundwater samples exceeding 915-1 4

-- Highest concentration of Benzene (µg/l) 1480
-- Highest concentration of Toluene (µg/l) 3070
-- Highest concentration of Ethylbenzene (µg/l) 238
-- Highest concentration of Xylene (µg/l) 4560
NA Highest concentration of Methane (mg/l) _____

Surface Water

7 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?

Were background samples collected as part of this site investigation?

One tank battery soil background soil sample and two native soil background soil samples were collected for laboratory analysis of specific conductivity (EC), sodium adsorption ratio (SAR), pH, boron, and metals. Laboratory analytical results indicated arsenic is naturally high in the soil used to construct the tank battery and the native soil. The background soil samples are depicted on Figure 1.

One background groundwater sample was also collected and submitted for Table 915-1 inorganic parameters. Laboratory analytical results indicated sulfate ion is naturally high in the native groundwater. The background groundwater sample is depicted on Figure 2.

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.

Approximately 22,828 bbls of impacted water and 140 CY of impacted soil were transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 15,620 CY of impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 20 CY of impacted soil was transported to the Front Range Landfill in Erie, Colorado for disposal. Approximately 2,500 CY of impacted soil was transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Disposal records are kept on file and are available upon request.

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.

On May 22, 2023, eight groundwater monitoring wells were installed in order to determine the extent and magnitude of any remaining impacts. Quarterly groundwater monitoring of the newly-installed well network was initiated on June 26, 2023. Analytical results from all monitoring wells indicate that groundwater has remained in full compliance with Table 915-1 standards for organic constituents.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)
 _____ Chemical oxidation
 _____ Air sparge / Soil vapor extraction
 _____ Natural Attenuation
 _____ Other _____

Yes Excavate and offsite disposal

 If Yes: Estimated Volume (Cubic Yards) _____ 18280
 Name of Licensed Disposal Facility or ECMC Facility ID # _____ 149007
 No 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.

Groundwater monitoring wells MW01 through MW08 have been sampled on a quarterly basis for the full list of analytes for groundwater in Table 915-1. Cross-gradient and historically compliant monitoring well MW03 was established as a representative background well for calculating the inorganic parameters in Table 915-1. Point of compliance (POC) for inorganic constituents was again achieved during the first quarter 2024 monitoring event as no inorganic parameters exceeded Table 915-1 allowable levels and/or background levels. The monitoring well locations are depicted on Figure 1. The groundwater elevation contour maps for the past four monitoring events are provided as Figures 4a through 4d.

As of the March 2024 quarterly monitoring event, all monitoring wells have been in compliance with the ECMC Table 915-1 allowable levels for organic parameters for four quarters and no organic constituents have been detected above the laboratory reporting limits since excavation activities were completed at the Site. Inorganic constituents in exceedance of background levels were detected during the second quarter and fourth quarter 2023 monitoring events; however, an overall decreasing trend has been observed at each location over the previous four quarters of monitoring.

As such, Kerr-McGee is requesting a no further action ruling at this location. The groundwater analytical results are summarized in Table 2. The laboratory reports for the previous four groundwater monitoring events are attached.

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. 02/21/2025

Proposed date of completion of Reclamation. 02/21/2026

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. 08/25/2021

Actual Spill or Release date, or date of discovery. 06/28/2021

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/28/2021

Proposed site investigation commencement. 06/28/2021

Proposed completion of site investigation. 09/05/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/28/2021

Proposed date of completion of Remediation. 03/05/2024

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

The Form 42 Document No. associated with this facility is 403906591.

Based on the analytical data provided herein, assessment and remediation are 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: 02/24/2025

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: Nick Cholas

Date: 04/23/2025

Remediation Project Number: 20436

COA Type**Description**

	Operator shall update the implementation schedule in accordance with Rule 913.d on the subsequent Supplemental Form 27.
	ECMC removed operators request for closure. Operator shall abandon the monitoring wells in accordance with DWR regulations within 90 days of the approval of this Form 27. Operator shall provide documentation of abandonment on Supplemental Form 27.
2 COAs	

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**

404102968	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
404103001	ANALYTICAL RESULTS
404103004	SOIL SAMPLE LOCATION MAP
404103005	SITE MAP
404103006	SITE MAP
404103008	GROUND WATER ELEVATION MAP
404103009	GROUND WATER ELEVATION MAP
404103011	GROUND WATER ELEVATION MAP
404103012	GROUND WATER ELEVATION MAP
404103013	ANALYTICAL RESULTS
404103014	ANALYTICAL RESULTS
404103018	ANALYTICAL RESULTS
404103020	ANALYTICAL RESULTS
404103021	ANALYTICAL RESULTS
404103023	ANALYTICAL RESULTS
404103025	ANALYTICAL RESULTS
404103026	ANALYTICAL RESULTS
404103029	ANALYTICAL RESULTS
404103031	ANALYTICAL RESULTS
404103033	ANALYTICAL RESULTS
404103034	ANALYTICAL RESULTS

404103035	ANALYTICAL RESULTS
404103036	ANALYTICAL RESULTS
404103038	ANALYTICAL RESULTS
404103064	ANALYTICAL RESULTS
404103065	ANALYTICAL RESULTS
404103067	ANALYTICAL RESULTS
404103068	ANALYTICAL RESULTS
404103070	ANALYTICAL RESULTS
404176380	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 30 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)