

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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01/29/2024

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 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: Phil Hamlin	Email: Phillip_Hamlin@oxy.com	Mobile: ()

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 4361 Initial Form 27 Document #: 1984510

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: LOCATION	Facility ID: 318081	API #: _____	County Name: WELD
Facility Name: ELSIE I SMITH GAS UNIT-62N65W 33SENE	Latitude: 40.098481	Longitude: -104.663117	
** correct Lat/Long if needed: Latitude: 40.098891		Longitude: -104.662980	
QtrQtr: SENE	Sec: 33	Twp: 2N	Range: 65W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SC Most Sensitive Adjacent Land Use Pasture

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

Water well located approximately 1,160 feet (ft) west, surface water located approximately 1,100 ft west, and groundwater located approximately 7 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 Sampling/Lab Analysis
Yes	SOILS	190' N-S x 205' E-W x 40' bgs (max)	Soil Sampling/Lab 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.

Based on data collected by the previous operator of the Smith Elsie 1 facility (Amoco), the Energy and Carbon Management Commission (ECMC) requested that Kerr-McGee conduct additional subsurface assessment activities at this tank battery to determine the extent and magnitude of any potential historic soil and or groundwater petroleum hydrocarbon impacts. Soil and groundwater assessment began in May 2008, and petroleum hydrocarbon impacts to soil and groundwater were encountered.

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):

Please refer to the Soil Sampling Summary Attachment.

Proposed Groundwater Sampling

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

Initial groundwater monitoring was conducted at the site between May 2008 and January 2009. Quarterly groundwater monitoring has been conducted at the site since August 2014. Groundwater monitoring was not conducted between November 2019 and June 2020 due to excavation 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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 177
Number of soil samples exceeding 915-1 43
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 26200

NA / ND

-- Highest concentration of TPH (mg/kg) 30280
-- Highest concentration of SAR 12.61
BTEX > 915-1 Yes
Vertical Extent > 915-1 (in feet) 40

Groundwater

Number of groundwater samples collected 584
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 12
Number of groundwater monitoring wells installed 69
Number of groundwater samples exceeding 915-1 276

-- Highest concentration of Benzene (µg/l) 11300
-- Highest concentration of Toluene (µg/l) 7900
-- Highest concentration of Ethylbenzene (µg/l) 1940
-- Highest concentration of Xylene (µg/l) 27800
NA 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?

Groundwater impacts were detected in the adjoining rangeland west and northwest of the former tank battery.

☐ 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?

Since installation, point of compliance wells MW35, MW36, and MW39 have remained dry during the September and November 2023 sampling events. However, historically wells have remained dry for several quarters after installation, but consistently contained sufficient water for sampling after those initial dry quarters. If wells MW35, MW36, and MW39 continue to remain dry throughout the first and second quarter of 2024, the wells will be reinstalled to a deeper depth. If the wells are reinstalled, soil samples will not be collected, as indicated in the condition of approval provided in the Form 27 Supplemental dated October 19, 2023 (Document No. 403557903), as the existing wells will be over drilled and sample collection will not be possible. If, however, new wells are required to obtain POC, soil samples will be collected from each soil boring advanced during well installation.

REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? Yes

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Approximately 29,808 cubic yards of petroleum hydrocarbon impacted soil were removed from the excavation and transported to Buffalo Ridge Landfill in Keenesburg, Colorado, for disposal. The petroleum hydrocarbon impacted soil was excavated into the phreatic zone to address potential hydrocarbon impacts that may have been present below the current groundwater table due to seasonal fluctuations. In order to remove the impacted soil from the excavation base to a total depth of 40 ft bgs, the excavation sidewalls were sloped (1.5:1 ratio) for stability in accordance with Occupational Safety and Health Administration Excavation Standard 29 Code of Federal Regulations Part 1926 Sub-part P Section 1926.652(c)(4). The general site layout and excavation footprint are depicted on the Site Map provided as Figure 1.

During excavation activities, a crushed concrete produced water vessel (PWV) was encountered. The crushed PWV was removed and disposed. The location of the PWV is depicted on Figure 1.

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.

Between December 2019 and March 2020, petroleum hydrocarbon impacted soil was excavated, as described in the Source Removal Summary section above.

Soil Remediation Summary

☐ In Situ

☒ Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 29808

_____ Air sparge / Soil vapor extraction

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

_____ Natural Attenuation

No _____ Excavate and onsite remediation

_____ Other _____

No _____ Land Treatment

No _____ Bioremediation (or enhanced bioremediation)

No _____ Chemical oxidation

No _____ 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.

Groundwater monitoring wells AMW01R2 and MW04R through MW42 are sampled on a quarterly basis for the full list of analyses for groundwater in Table 915-1. The request to cease sampling for inorganics parameters was granted by the ECMC on January 11, 2023. POC wells MW32 and MW33 exceeded the ECMC Table 915-1 allowable level for benzene, total xylenes, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene during the third quarter 2023 sampling event. Additional groundwater monitoring wells were installed downgradient of these locations in September 2023 to attempt to establish POC; however, monitoring wells MW35, MW36, and MW39 were dry and could not be sampled. POC will continue to be evaluated on a quarterly basis. The monitoring well locations are depicted on Figure 1. The Groundwater Elevation Contour Map generated using the November 2023 survey data is provided as Figure 2. The groundwater analytical results are summarized in Table 1, and the laboratory analytical reports for the November 2023 groundwater monitoring events are attached.

Groundwater monitoring will continue on a quarterly basis until a No Further Action status request 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 Energy 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: \$ 42000

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 29808

E&P waste (solid) description Petroleum hydrocarbon impacted soil

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Buffalo Ridge Landfill in Keenesburg, 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? No

Is additional groundwater monitoring to be conducted? Yes

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 facility was abandoned. The site will be reclaimed in accordance with ECMC 1000 Series Reclamation 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. _____

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. 04/24/2008

Actual Spill or Release date, or date of discovery. 04/24/2008

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/24/2008

Proposed site investigation commencement. 04/24/2008

Proposed completion of site investigation. 12/31/2026

REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/24/2008

Proposed date of completion of Remediation. 07/31/2025

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

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: 01/29/2024

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: Laurel Anderson

Date: 05/07/2024

Remediation Project Number: 4361

COA Type**Description**

	<p>Operator states: "Since installation, point of compliance wells MW35, MW36, and MW39 have remained dry during the September and November 2023 sampling events. However, historically wells have remained dry for several quarters after installation, but consistently contained sufficient water for sampling after those initial dry quarters. If wells MW35, MW36, and MW39 continue to remain dry throughout the first and second quarter of 2024, the wells will be reinstalled to a deeper depth. If the wells are reinstalled, soil samples will not be collected, as indicated in the condition of approval provided in the Form 27 Supplemental dated October 19, 2023 (Document No. 403557903), as the existing wells will be over drilled and sample collection will not be possible. If, however, new wells are required to obtain POC, soil samples will be collected from each soil boring advanced during well installation."</p> <p>COAs from Doc #403557903 remain and are outstanding.</p>
	<p>Multiple POC wells remain dry/have insufficient volume to sample. Per COA on Doc #Doc #403557903: "In accordance with Rule 914 additional monitoring wells are required to define the horizontal extent of impacts to groundwater. If laboratory analytical results indicate POC has been lost, then Operator shall install additional point of compliance wells within 45 days from receipt of the laboratory analytical data. Note: Installation of deeper monitoring wells may be required to ensure point of compliance if the previously installed monitoring wells continue to have insufficient volume for sampling."</p>
	<p>Per COA on Doc #Doc #403557903: "Operator has referenced previous 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. Confirmation soil sampling to ensure compliance with current ECMC standards is required prior to closure of this Remediation Project."</p> <p>Operator shall propose additional site assessment (and timeline for completion) to document compliance with current ECMC Rule 915 effective January 15, 2021.</p>
	<p>Per COA on Doc #Doc #403557903: "Operator shall submit a minimum of one soil sample for laboratory analysis of all Table 915-1 contaminants of concern from each soil boring advanced during monitoring well installation in the future."</p>
	<p>Operator will provide notice to ECMC EPS Laurel Anderson (laurel.anderson@state.co.us) at least 48 hours prior to backfill, soil boring/monitoring well installation, or any sampling events performed on location.</p>
5 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.

<u>Att Doc Num</u>	<u>Name</u>
403650462	FORM 27-SUPPLEMENTAL-SUBMITTED
403650674	ANALYTICAL RESULTS
403650675	ANALYTICAL RESULTS
403657763	SITE MAP
403657764	GROUND WATER ELEVATION MAP
403669476	SITE INVESTIGATION REPORT

Total Attach: 6 Files

General Comments

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

Total: 0 comment(s)