

State of Colorado
Energy & Carbon Management Commission

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Document Number:
403939321
Receive Date:
10/25/2024

Report taken by:
Taylor Robinson

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 ECOM 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>		Phone: <u>(720) 929-4306</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80217-3779</u>		Mobile: <u>()</u>
Contact Person: <u>Erik Mickelson</u>	Email: <u>DJRemediation_Forms@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 29128 Initial Form 27 Document #: 403367942

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>330417</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>HSR-KNOX-65N67W 3SWSW</u>	Latitude: <u>40.423480</u>	Longitude: <u>-104.885420</u>	
	** correct Lat/Long if needed: Latitude: <u>40.423602</u>	Longitude: <u>-104.885194</u>	
QtrQtr: <u>SWSW</u> Sec: <u>3</u> Twp: <u>5N</u> Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>484927</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Knox 12&13-3 O SA Tank Battery</u>	Latitude: <u>40.423602</u>	Longitude: <u>-104.885194</u>	
	** correct Lat/Long if needed: Latitude: _____	Longitude: _____	
QtrQtr: <u>SWSW</u> Sec: <u>3</u> Twp: <u>5N</u> Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

SITE CONDITIONS

General soil type - USCS Classifications SC

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

Domestic water well: none
Surface water: approximately 330' E
Wetlands: none
Spring: none
Livestock: none
Occupied Building: none
High Priority Habitats: none

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
UNDETERMINED	GROUNDWATER	TBD	Groundwater samples/laboratory analytical results
Yes	SOILS	TBD	Inspection/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.

Decommissioning activities were completed at the Knox 12&13-3 O SA production facility on June 26, 2023. Groundwater was not encountered during excavation activities. Visual inspection and field screening of soils at one separator, one meter house, one produced water vessel (PWV), one emission control device (ECD), and one aboveground storage tank (AST) was conducted following removal activities and soil samples (SEP-B01@4', SEP-B02@4', PW-B01@5', PW-N01@2.5', DL-B01@4', and AST-B01@3") were submitted for laboratory analysis to determine if a release occurred. Laboratory analytical results indicated that SAR concentration in soil sample PW-B01@5' and the 1-methylnaphthalene and benzo(a)anthracene concentrations in soil sample DL-B01@4' exceeded the applicable ECOM Table 915-1 standards. As such, a Form 19-Initial Spill/Release Report (Document No. 403455648) was submitted on July 7, 2023, and the ECOM issued Spill/Release Point ID 484927. A topographic Site Location Map showing the geographic setting of the site location is provided as Figure 1. Soil sample location and field screening data is presented in Table 1. The soil sample and field screening locations are illustrated on Figures 2 through 6. Laboratory analytical reports are attached. The field notes and a photographic log are provided as Attachment A.

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):

On June 26, 2023 through September 24, 2024, soil samples were collected from the base and sidewalls of the current excavation extent ranging at depths of approximately 5 to 35 feet below ground surface (bgs). Based on the waste characterization results (PW-B01@5', DL-B01@4'), soil samples were submitted for laboratory analysis of TPH, naphthalene, 1,3,5-TMB, pH, SAR, PAHs, arsenic, barium, cadmium, copper, lead, nickel, and selenium using ECOM approved methods. Analytical results indicate that soil impacts remain in the excavation area. Excavation and site assessment activities are currently ongoing and will be summarized in a forthcoming Form 27-Supplemental update. Confirmation soil samples will continue to be submitted for laboratory analysis of the reduced analyte list described herein, based on the waste characterization results. Soil analytical results are summarized in Tables 2 through 5.

Proposed Groundwater Sampling

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

Groundwater was not encountered during decommissioning or excavation activities. If groundwater is encountered during remaining assessment activities, a minimum of one grab sample will be collected as soon as practical. Groundwater samples will be submitted to an accredited laboratory for all analytes listed in ECOM Table 915-1 Organic Compounds in Groundwater (benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (1,2,4-TMB), and 1,3,5-trimethylbenzene (1,3,5-TMB)) and Groundwater Inorganic Parameters (total dissolved solids (TDS), chloride, and sulfate) using standard methods appropriate for detecting the target analytes in ECOM Table 915-1.

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):

On June 26, 2023, visual inspections and field screening of soils was conducted at three sidewalls of the PWV excavation, one ECD, one former meter house, and one former AST location. Based on the inspection and screening results, hydrocarbon-impacted soils were not observed at the soil screening locations. As a result, no soil samples were submitted for laboratory analysis from these areas in accordance with the ECOM Operator Guidance for Oil & Gas Facility Closure document.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 104

Number of soil samples exceeding 915-1 102

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 5720

NA / ND

-- Highest concentration of TPH (mg/kg) 10835

-- Highest concentration of SAR 33.9

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 35

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) _____

Number of groundwater monitoring wells installed _____

Number of groundwater samples exceeding 915-1 _____

_____ Highest concentration of Benzene (µg/l) _____

_____ Highest concentration of Toluene (µg/l) _____

_____ Highest concentration of Ethylbenzene (µg/l) _____

_____ Highest concentration of Xylene (µg/l) _____

_____ 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?

Were background samples collected as part of this site investigation?

Background soil samples PW-BG01 - PW-BG08 were collected from native non-impacted material nearby at the tank battery ranging at depths of approximately 4 to 20 feet below ground surface (bgs). Additional background samples collected at the Knox 4-3/Anderson 3-3 O SA facility (located approximately 0.5 miles N) from similar soil type/depth and from the same land use have been included. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters in Soils and Table 915-1 metals using standard methods appropriate for detecting the target analytes in Table 915-1. Analytical results for the background soil samples are presented in Tables 3 and 5. The background locations are illustrated on Figures 4 through 6.

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?

Historically impacted soil remains at the site. Excavation and site assessment activities to address remaining soil impacts are currently ongoing and will be summarized in a forthcoming Form 27-Supplemental update.

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.

Excavation and site assessment activities to address remaining soil impacts are currently ongoing and will be summarized in a forthcoming Form 27-Supplemental update. Impacted soil will continue to be transported off-site for disposal at a licensed disposal facility.

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.

Historically impacted soil remains at the site. Excavation and site assessment activities to address remaining soil impacts are currently ongoing and will be summarized in a forthcoming Form 27-Supplemental update. Estimated time to attain NFA is TBD based on the extent of impacted soil remaining.

Soil Remediation Summary

In Situ

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

Ex Situ

_____ Excavate and offsite disposal
_____ If Yes: Estimated Volume (Cubic Yards) _____
_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____
_____ 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.

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 ECMC. 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: \$ 13500 _____

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? _____

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Volume of E&P Waste (solid) in cubic yards _____

E&P waste (solid) description _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

Volume of E&P Waste (liquid) in barrels _____

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? _____

Does the previous reply indicate consideration of background concentrations? _____

Does Groundwater meet Table 915-1 standards? _____

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.

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. 02/09/2023

Actual Spill or Release date, or date of discovery. 07/06/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/26/2023

Proposed site investigation commencement. 06/26/2023

Proposed completion of site investigation. 03/31/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 07/06/2023

Proposed date of completion of Remediation. 03/31/2025

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

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

Signed: Erik Mickelson

Title: Environmental Lead

Submit Date: 10/25/2024

Email: DJRemediation_Forms@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: Taylor Robinson

Date: 12/26/2024

Remediation Project Number: 29128

COA Type**Description**

	Operator shall refrain from attaching previously submitted attachments on status updates.
1 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**

403939321	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403958963	PHOTO DOCUMENTATION
403958964	PHOTO DOCUMENTATION
403958966	SITE MAP
403958968	SOIL SAMPLE LOCATION MAP
403958970	SOIL SAMPLE LOCATION MAP
403958971	SOIL SAMPLE LOCATION MAP
403958973	SOIL SAMPLE LOCATION MAP
403958974	ANALYTICAL RESULTS
403958975	ANALYTICAL RESULTS
403958976	ANALYTICAL RESULTS
403958977	ANALYTICAL RESULTS
403958978	ANALYTICAL RESULTS
403958979	ANALYTICAL RESULTS
403958980	ANALYTICAL RESULTS
403958981	ANALYTICAL RESULTS
403958984	ANALYTICAL RESULTS
403958991	ANALYTICAL RESULTS
403958992	ANALYTICAL RESULTS
403958993	ANALYTICAL RESULTS
403958994	ANALYTICAL RESULTS
403958997	ANALYTICAL RESULTS
403958998	ANALYTICAL RESULTS
403958999	ANALYTICAL RESULTS
403964502	SOIL SAMPLE LOCATION MAP

403964536	ANALYTICAL RESULTS
404041022	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 27 Files

General Comments

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

Total: 0 comment(s)