

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Kari Brown

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>		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 #: 33721 Initial Form 27 Document #: 403648152

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>417800</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>SATER 24N-5HZ</u>	Latitude: <u>40.153867</u>	Longitude: <u>-104.913193</u>	
	** correct Lat/Long if needed: Latitude: <u>40.153127</u>	Longitude: <u>-104.913441</u>	
QtrQtr: <u>SWNE</u> Sec: <u>8</u> Twp: <u>2N</u> Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>485799</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Sater 24C,40N,24N,25C-5HZ O SA</u>	Latitude: <u>40.153430</u>	Longitude: <u>-104.912960</u>	
	** correct Lat/Long if needed: Latitude: _____	Longitude: _____	
QtrQtr: <u>SWNE</u> Sec: <u>8</u> Twp: <u>2N</u> Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Crop land

Is domestic water well within 1/4 mile? Yes

Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

Domestic water well: approximately 950' SW
Surface water: none
Wetlands: none
Spring: none
Livestock: none
Occupied Building: multiple occupied buildings within 1/4 mile
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
Yes	GROUNDWATER	TBD	Groundwater samples/laboratory analytical results
Yes	SOILS	28' (N-S) x 60' (E-W) x 14' bgs	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.

On December 19, 2023, a release of an unknown volume was discovered at the Sater 24C,40N,24N,25C-5HZ facility location. Visual inspection and field screening of soils around the separator was conducted, and a soil sample (Initial Waste Characterization@6") was submitted for laboratory analysis. Laboratory analytical results indicated that total petroleum hydrocarbons, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, benzene, ethylbenzene, toluene, total xylenes, 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, benzo(a)anthracene, fluorene, and naphthalene concentrations in Initial Waste Characterization@6" exceeded the applicable ECMC Table 915-1 standards. As such, a Form 19-Initial/Supplemental Spill/Release Report (ECMC Document No. 403630074) was submitted on December 21, 2023, and the ECMC issued Spill/Release Point ID 485799.

Partial decommissioning activities were completed at the Sater 24C,40N,24N,25C-5HZ facility on January 29 through May 6, 2024. Groundwater was encountered in the excavation area at a depth of approximately 13' below ground surface (bgs). Visual inspection and field screening of soils at five (5) separators was conducted following removal activities and ten (10) soil samples were submitted for laboratory analysis to determine if a release occurred. Laboratory analytical results indicated that TPH, TMBs, naphthalene, pH, 1 and 2-methylnaphthalene, fluorene, arsenic, cadmium, and/or selenium concentrations in seven (7) soil samples collected from beneath former separator locations exceeded the applicable ECMC Table 915-1 standards and site-specific background limits. 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 are presented in Table 1. The soil sample locations are illustrated on Figure 2. The laboratory analytical reports are provided as Attachment A. The field notes and a photographic log are provided as Attachment B.

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 January 29 through May 6, 2024, excavation activities were conducted to address remaining soil impacts at the former separator locations and sixteen (16) soil samples were collected from the base and sidewalls of the final excavation extent at depths ranging from approximately 5 to 14 feet bgs. Based on waste characterization results (Initial Waste Characterization@6"), the soil samples were submitted for laboratory analysis of BTEX, TPH, naphthalene, TMBs, PAHs, and ECMC Table 915-1 metals using ECMC approved methods. Analytical results for the soil samples collected from the final excavation extent were in compliance with the applicable ECMC Table 915-1 standards and/or within site-specific background limits, with exception to the As, Se, and pH concentrations remaining in six (6) soil samples. Additional excavation and assessment activities are ongoing and will be summarized in a Form 27-Supplemental update.

Proposed Groundwater Sampling

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

During remediation activities, groundwater was encountered within the excavation area at approximately 13' bgs. On February 23, 2024, a groundwater sample (GW-01) was collected from the excavation area and submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-TMB, and 1,3,5-TMB by USEPA Method 8260D as discussed in the Form 27 Initial (Document No. 403648152). Groundwater analytical results indicated that the 1,2,4-TMB concentration in groundwater sample GW-01 exceeded the ECMC Table 915-1 standards. Groundwater analytical results are summarized in Table 6 and the sample location is illustrated in Figure 2. Monitoring wells will be installed at the site and sampled for four consecutive quarters to monitor for groundwater compliance. Future groundwater samples will be submitted for the ECMC Table 915-1 groundwater analytical suite, as well as dissolved As and Se.

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	NA / ND
Number of soil samples collected <u>30</u>	-- Highest concentration of TPH (mg/kg) <u>60100</u>
Number of soil samples exceeding 915-1 <u>30</u>	-- Highest concentration of SAR <u>3.08</u>
Was the areal and vertical extent of soil contamination delineated? <u>No</u>	BTEX > 915-1 <u>Yes</u>
Approximate areal extent (square feet) <u>1680</u>	Vertical Extent > 915-1 (in feet) <u>14</u>
Groundwater	
Number of groundwater samples collected <u>1</u>	-- Highest concentration of Benzene (µg/l) <u>1.88</u>
Was extent of groundwater contaminated delineated? <u>No</u>	-- Highest concentration of Toluene (µg/l) <u>8.86</u>
Depth to groundwater (below ground surface, in feet) <u>13</u>	-- Highest concentration of Ethylbenzene (µg/l) <u>10.5</u>
Number of groundwater monitoring wells installed <u>0</u>	-- Highest concentration of Xylene (µg/l) <u>172</u>
Number of groundwater samples exceeding 915-1 <u>1</u>	NA Highest concentration of Methane (mg/l) <u></u>
Surface Water	
<u>0</u> Number of surface water samples collected	
<u></u> 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 BG-01 - BG-07 (ranging from 6" to 13' bgs), WH-BG08@5' - WH-BG10@5', and WH-BG08@10' - WH-BG10@10' were collected from native material adjacent to the wellhead excavation. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters 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. Background locations are presented 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?

Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining soil impacts. Based on the remaining arsenic and selenium impacts in the former separator excavation area, groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of the ECMC Table 915-1 groundwater analytical suite, as well as dissolved arsenic and selenium.

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 assessment activities are ongoing. Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining soil impacts.

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.

Excavation and assessment activities are ongoing. Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining soil impacts. Based on the remaining arsenic and selenium impacts in the former separator excavation area, groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of the ECMC Table 915-1 groundwater analytical suite, as well as dissolved arsenic and selenium. Estimated time to attain NFA is TBD based on the groundwater concentrations, the extent of impacted groundwater, and the efficacy of the selected remedial technologies.

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.

Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining soil impacts. Based on the remaining arsenic and selenium impacts in the former separator excavation area, groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of the ECMC Table 915-1 groundwater analytical suite, as well as dissolved arsenic and selenium. A groundwater monitoring location figure illustrating the locations of the surveyed monitoring wells will be provided in a Form 27-Supplemental update.

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 & 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: \$ 14500 _____

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? 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 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. 12/19/2023

Actual Spill or Release date, or date of discovery. 12/19/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/19/2023

Proposed site investigation commencement. 12/19/2023

Proposed completion of site investigation. 12/31/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/19/2023

Proposed date of completion of Remediation. 12/31/2025

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: 07/30/2024 _____

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: Kari Brown _____

Date: 10/17/2024 _____

Remediation Project Number: 33721 _____

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**

403864675	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403864843	PHOTO DOCUMENTATION
403864849	SITE MAP
403864851	SOIL SAMPLE LOCATION MAP
403864852	ANALYTICAL RESULTS
403864853	ANALYTICAL RESULTS
403961958	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 7 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)