

State of Colorado
Energy & Carbon Management Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



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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>(970) 515-1110</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80217-3779</u>
Contact Person: <u>Macy Kiel</u>	Email: <u>DJRemediation_Forms@oxy.com</u>	Mobile: <u>()</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 28966 Initial Form 27 Document #: 403361328

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>TANK BATTERY</u>	Facility ID: <u>470881</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>UPRR 42 PanAm R True 1 battery</u>	Latitude: <u>40.128609</u>	Longitude: <u>-104.785728</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NENW</u>	Sec: <u>21</u>	Twp: <u>2N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>486008</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Mullet 6-21A/UP42 O SA</u>	Latitude: <u>40.128609</u>	Longitude: <u>-104.785728</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NENW</u>	Sec: <u>21</u>	Twp: <u>2N</u>	Range: <u>66W</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? 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

Domestic water well: multiple domestic wells within 1/4 mile
Surface water: multiple surface water features within 1/4 mile
Wetland: multiple areas with wetland characteristics within 1/4 mile
Spring: none
Livestock: multiple livestock areas within 1/4 mile
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	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.

Facility decommissioning activities were completed at the Mullet 6-21A,UP42 O SA location on August 4, 2023, as summarized in the approved Form 27-Supplemental Document #403991202. Laboratory analytical results indicated that soil samples AST-B01@3", DL-B12@5', REC Waste Characterization-01@1' and REC Waste Characterization-02@1' contained TPH, naph., TMBs, pH, SAR, 1 and 2 methylnaphthalene, arsenic, barium, and/or lead concentrations exceeding the applicable ECMC Table 915-1 standards and/or background concentrations, and the ECMC issued Spill/Release Point ID 486008 for this release.

From August 4, 2023, through August 22, 2024, confirmation and verification soil samples were collected from the base and sidewalls of the final excavation extents ranging at depths of approximately 4' to 20' bgs. Based on waste characterization results (REC Waste Characterization-02@1' and DL-B12@5'), soil samples were submitted for laboratory analysis of BTEX, TPH, naphthalene, TMBs, pH, SAR, boron, PAHs, and/or ECMC Table915-1 metals using ECMC approved methods, as previously approved in Form 27-Supplemental Document #403749350. Analytical results indicated that organic and inorganic soil impacts remain within the excavation areas. However, due to the presence of groundwater, excavation activities were unable to safely continue.

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):

To delineate and characterize remaining impacts, 30 soil borings were advanced in and around the final excavation extents to total depths of approximately 19' - 25' bgs. Monitoring wells were installed in each boring location. Soil samples were collected based on the interval exhibiting the highest PID and/or from the interval above the observed water table. The soil samples were submitted for analysis of the full Table 915-1 analytical suite using ECMC-approved methods. Final analytical results for the soil samples collected during monitoring well installation indicate that impacts have not been fully defined, and additional site investigation will be completed to further delineate impacts.

Proposed Groundwater Sampling

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

Depth to groundwater was observed at approximately 5' - 13' bgs within the 30 monitoring wells that have been gauged and sampled. On 12/26/24, 3/24-3/25/25, and 6/26/25, groundwater samples were collected and submitted for laboratory analysis of the ECMC Table 915-1 groundwater analytical suite, as well as 1-methylnaphthalene, 2-methylnaphthalene, benzo(a)anthracene, and/or dissolved metals (As, Ba, Cd, Pb, Ni, and Se). Analytical results from 4Q25, 1Q25, and 2Q25 indicate that 1,2,4-TMB, 1,3,5-TMB, 1-methylnaphthalene, 2-methylnaphthalene and/or dissolved metals (As, Cd, Pb, Ni, and Se) concentrations in multiple groundwater samples exceeded the ECMC Table 915-1 standards and/or background limits. As such, step-out wells will be installed to further delineate groundwater impacts. Quarterly groundwater monitoring will continue until 4 quarters of compliant groundwater is reached. The groundwater analytical results are summarized on Tables 7 and 8.

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):

The monitoring well sample locations are illustrated on Figure 1. The soil analytical results are summarized in Tables 2 - 5. The secured laboratory analytical reports are attached.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 256
Number of soil samples exceeding 915-1 231
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 36000

NA / ND

-- Highest concentration of TPH (mg/kg) 6560
-- Highest concentration of SAR 61.6
BTEX > 915-1 Yes
Vertical Extent > 915-1 (in feet) 20

Groundwater

Number of groundwater samples collected 75
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 5
Number of groundwater monitoring wells installed 30
Number of groundwater samples exceeding 915-1 14

-- Highest concentration of Benzene (µg/l) 1.49
-- Highest concentration of Toluene (µg/l) 3.58
-- Highest concentration of Ethylbenzene (µg/l) 37.1
-- Highest concentration of Xylene (µg/l) 437
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?

Were background samples collected as part of this site investigation?

Background soil samples PW-BG01, PW-BG03-PW-BG15, REC-BG01, and AST-BG01 were collected from native material within non-impacted areas near the facility from depths ranging from approximately 0.25 - 20' bgs. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and ECMC Table 915-1 metals using standard methods appropriate for detecting target analytes in Table 915-1. Additional background soil samples will be collected to assess native soil conditions and to address the remaining inorganic exceedances. Analytical results for the background soil samples are presented in Tables 3 and 5.

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?

Based on analytical results, step-out wells will be installed to further delineate groundwater impacts. Based on the remaining soil impacts in the former excavation areas and additional background analytical data, 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 1 and 2 methylanthracene, benzo(a)anthracene, and dissolved metals (As, Ba, Cd, Pb, Ni, Cr VI, and Se).

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 August 4, 2023 and August 22, 2024, approximately 27,680 cubic yards of impacted material were excavated and transported to the Front Range Landfill located in Erie, Colorado for disposal. Approximately 303 cubic yards of impacted slurry were removed from the excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility for recycling. Approximately 2,480 barrels of impacted groundwater were removed from the excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility for recycling. Laboratory analytical results indicate that organic and inorganic soil impacts exceeding ECMC Table 915-1 standards and site-specific background limits remain at the site. However, Kerr-McGee has received Director's approval to assess compliance through quarterly groundwater monitoring in the previous Form 27-Supplemental (Document #403991202, approved on 1/30/25). The excavation areas have been backfilled and contoured to match pre-existing conditions.

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.

Laboratory analytical results indicate that organic and inorganic soil impacts exceeding ECMC Table 915-1 standards and site-specific background limits remain at the site. However, Kerr-McGee has received Director's approval to assess compliance through quarterly groundwater monitoring in the previous Form 27-Supplemental (Document #403991202, approved on 1/30/25). Following additional delineation and monitoring well installation activities, KMOG will propose a remedial plan in a forthcoming Form 27-Supplemental Update. 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

Ex Situ

<p>_____ Bioremediation (or enhanced bioremediation)</p> <p>_____ Chemical oxidation</p> <p>_____ Air sparge / Soil vapor extraction</p> <p>_____ Natural Attenuation</p> <p>_____ Other _____</p>	<p>Yes</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Excavate and offsite disposal</p> <p>If Yes: Estimated Volume (Cubic Yards) _____ 27983</p> <p>Name of Licensed Disposal Facility or ECMC Facility ID # _____ 434766</p> <p>Excavate and onsite remediation</p> <p>_____ Land Treatment</p> <p>_____ Bioremediation (or enhanced bioremediation)</p> <p>_____ Chemical oxidation</p> <p>_____ Other _____</p>
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Groundwater Remediation Summary

No _____ Bioremediation (or enhanced bioremediation)

No _____ Chemical oxidation

No _____ Air sparge / Soil vapor extraction

Yes _____ Natural Attenuation

Yes _____ Other _____ Groundwater removal

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.

On 12/16/24 - 2/7/24, 30 temporary groundwater monitoring wells (MW-01 - MW-30) were installed at the site to delineate remaining soil impacts and to monitor groundwater conditions. Analytical results indicate that 1,2,4-TMB, 1,3,5-TMB, 1-methylnaphthalene, 2-methylnaphthalene, and/or dissolved metals (As, Cd, Pb, Ni, and Se) concentrations in multiple groundwater samples exceeded the ECMC Table 915-1 standards and/or background limits. As such, step-out wells will be installed to further delineate impacts. Quarterly groundwater monitoring will continue until 4 quarters of compliant groundwater is reached. Based on the remaining soil impacts in the former excavation areas and additional background analytical data, 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 1 and 2 methylnaphthalene, benzo(a)anthracene, and dissolved metals (As, Ba, Cd, Pb, Ni, Cr VI, and Se). The First Quarter and Second Quarter 2025 groundwater elevation data is summarized on Table 6 and illustrated on Figures 2 and 3.

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. 07/28/2022

Actual Spill or Release date, or date of discovery. 02/02/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/04/2023

Proposed site investigation commencement. 08/04/2023

Proposed completion of site investigation. 09/30/2026

REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/02/2023

Proposed date of completion of Remediation. 09/30/2026

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 previous Form 27-Supplemental is still pending ECMC approval (Document #404101824, submitted 04/17/2025).

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

Signed: Macy Kiel

Title: Environmental Engineer

Submit Date: 09/08/2025

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: 10/21/2025

Remediation Project Number: 28966

COA Type**Description**

	Operator will collect a sample from the nearby domestic water well (DWR Permit 334651) for ECMC Table 915-1 groundwater analytical suite, as well as 1 and 2 methylnaphthalene, benzo(a)anthracene, and dissolved metals (As, Ba, Cd, Pb, Ni, Cr VI, and Se).
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**

404262947	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
404263026	GROUND WATER SAMPLE LOCATION
404263028	GROUND WATER ELEVATION MAP
404263036	LABORATORY ANALYTICAL REPORT
404263046	LABORATORY ANALYTICAL REPORT
404263047	LABORATORY ANALYTICAL REPORT
404263048	LABORATORY ANALYTICAL REPORT
404263051	LABORATORY ANALYTICAL REPORT
404287423	LABORATORY ANALYTICAL REPORT
404289278	GROUND WATER ELEVATION MAP
404292462	ANALYTICAL DATA SUMMARY TABLE(S)
404344904	LABORATORY ANALYTICAL REPORT
404344905	LABORATORY ANALYTICAL REPORT
404398493	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 14 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)