

State of Colorado
Energy & Carbon Management Commission

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



Document Number:
404307153
Receive Date:
08/15/2025

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 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) 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 #: 29312 Initial Form 27 Document #: 403395203

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>328480</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>HSR-COOPER-63N66W 10NWSW</u>	Latitude: <u>40.237670</u>	Longitude: <u>-104.770560</u>	
	** correct Lat/Long if needed: Latitude: <u>40.239287</u>	Longitude: <u>-104.772483</u>	
QtrQtr: <u>NWSW</u> Sec: <u>10</u> Twp: <u>3N</u> Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>484930</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Cooper 12-10A O SA</u>	Latitude: <u>40.239287</u>	Longitude: <u>-104.772483</u>	
	** correct Lat/Long if needed: Latitude: _____	Longitude: _____	
QtrQtr: <u>NWSW</u> Sec: <u>10</u> Twp: <u>3N</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 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: approximately 1315' NW
Surface water: approximately 585' W
Wetlands: multiple areas with wetland characteristics are located within 1/4 mile
Spring: none
Livestock: none
Occupied Building: approximately 1020' NW and 1250' NW
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	65' (N-S) x 120' (E-W) x 15' 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.

Decommissioning activities were completed at the Cooper 12-10A O SA production facility on August 3, 2023, as summarized in the approved Form 27-Supplemental Document #403873274. Laboratory analytical results indicated that 1,2,4-trimethylbenzene (TMB) and 1,3,5-TMB concentrations in soil sample DL-B01@4' exceeded the applicable ECMC Table 915-1 standards, and the ECMC issued Spill/Release Point ID 484930 for this release.

From August 3, 2023 through April 29, 2024, excavation activities were conducted to address the remaining soil impacts beneath the former facility and soil samples were collected from the sidewalls and base of the final excavation extent, at depths ranging from 4-15' bgs. Based on the waste characterization results (DL-B01@4', AST-B01@3"), subsequent soil samples have been submitted for laboratory analysis of TEX, TPH, naph., TMBs, EC, 1 and 2 methylnaphthalene, arsenic, barium, and cadmium, as previously approved in Form 27-Supplemental Document #403873274. Analytical results indicate that TMBs, and 1-methylnaphthalene soil impacts remain in the excavation area at approximately 15' bgs (DL-B07@15', DL-B10@15'). However, due to the presence of groundwater, excavation activities were unable to safely continue. Soil analytical results are summarized in Tables 2 through 5. The applicable secured laboratory analytical reports are attached.

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, 14 soil borings were advanced in and around the final excavation extent to total depths of approximately 20' bgs. Monitoring wells were installed in each boring location. Samples were collected based on the interval exhibiting the highest PID and/or from the interval above the observed water table. Soil samples were not collected from within the previous excavation area to avoid sampling non-native backfill material, with the exception of where potential impacts were encountered based on field observations. The samples were submitted for analysis of the full Table 915-1 analytical suite. Based on final analytical results and field observations from the delineation soil samples, the remaining soil impacts have been fully defined and delineated. The soil boring/monitoring well locations and the excavation extent are illustrated on Figures 1 and 3. The boring logs from 7/8/25 and 7/22/25 are attached.

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 5-7' bgs within the 14 monitoring wells installed at the site. Quarterly groundwater monitoring was initiated on 6/12/25. Groundwater samples were collected from monitoring wells MW-01, MW-03 - MW-12, and MW-14 and submitted for laboratory analysis of Table 915-1 organic and inorganic constituents and 1-methylnaphthalene by EPA standards. Analytical results indicated all samples were non-detect for organic constituents. Analytical results indicated that the Total Dissolved Solids (TDS), chloride ion, and/or sulfate ion concentrations in multiple groundwater samples exceeded Table 915-1 standards and/or local background limits. Groundwater analytical data is presented in 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):

On August 3, 2023, visual inspections and field screening of soils was conducted at three sidewalls of the former PWV excavation, 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 ECMC Operator Guidance for Oil & Gas Facility Closure document.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 72

Number of soil samples exceeding 915-1 64

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 7800

NA / ND

-- Highest concentration of TPH (mg/kg) 225.5

-- Highest concentration of SAR 5.4

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 15

Groundwater

Number of groundwater samples collected 15

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 5

Number of groundwater monitoring wells installed 14

Number of groundwater samples exceeding 915-1 0

-- Highest concentration of Benzene (µg/l) 1.04

-- Highest concentration of Toluene (µg/l) 1.89

-- Highest concentration of Ethylbenzene (µg/l) 44.9

-- Highest concentration of Xylene (µg/l) 130

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?

23 background soil samples were collected from native material near the tank battery ranging at depths of 3" to 20' bgs. Additional background samples from the Four Raith Unit 1 and HSR-Cooper 12-10A wellheads (located within approximately 0.7 miles) collected from similar soil type, depth, and land use have been included, as previously approved in Form 27-Supplemental Document #403873274. 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 target analytes in Table 915-1. Analytical results for the background soil samples are presented in Tables 3 and 5. The background soil samples collected on 2/21/25 and 7/8/2025 are illustrated 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?

Based on the remaining impacted saturated soil in the former excavation area, groundwater monitoring wells are being sampled on a quarterly basis and submitted for laboratory analysis of the ECOM Table 915-1 groundwater analytical suite, as well as 1-methylnaphthalene.

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 3, 2023 through April 29, 2024, approximately 4,050 cubic yards of impacted material were excavated and transported to the Buffalo Ridge Landfill located in Keenesburg, Colorado for disposal and approximately 230 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 1,904 barrels of impacted groundwater were removed from the dumpsite excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility for recycling. Laboratory analytical results indicate that TMBs and 1-methylnaphthalene impacts remain in the excavation area. However, due to groundwater within the excavation area, these impacts have been left in place as excavation activities could not safely continue. These remaining impacts will be addressed in-situ and monitored via quarterly groundwater monitoring. 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 TMBs and 1-methylnaphthalene soil impacts remain in the excavation area. However, Kerr-McGee has received Director's approval (Form 27-Supplemental Document #403873274) to delineate remaining soil impacts during monitoring well installation activities and assess groundwater compliance through quarterly groundwater monitoring. Based on the soil impacts remaining, the groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of the full ECMC Table 915-1 groundwater analytical suite, as well as 1-methylnaphthalene. 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

<input type="checkbox"/> In Situ _____ Bioremediation (or enhanced bioremediation) _____ Chemical oxidation _____ Air sparge / Soil vapor extraction _____ Natural Attenuation _____ Other _____	<input checked="" type="checkbox"/>	Ex Situ Yes _____ Excavate and offsite disposal If Yes: Estimated Volume (Cubic Yards) _____ 4280 Name of Licensed Disposal Facility or ECMC Facility ID # _____ 149007 _____ Excavate and onsite remediation _____ Land Treatment _____ Bioremediation (or enhanced bioremediation) _____ Chemical oxidation _____ Other _____
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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.

On 2/19/25 - 7/8/25, 14 temporary groundwater monitoring wells (MW-01, MW-03 - MW-12, and MW-14 - MW-16) were installed at the site to delineate remaining soil impacts and to monitor groundwater conditions. Analytical results indicated all samples were non-detect for organic constituents. Analytical results indicated that the Total Dissolved Solids (TDS), chloride ion, and/or sulfate ion concentrations in multiple groundwater samples exceeded Table 915-1 standards and/or local background limits. Following receipt of final analytical results from the Third Quarter 2025 sampling event, additional upgradient monitoring wells and/or step-out monitoring wells will be installed if needed to delineate inorganics in groundwater. 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-methylnaphthalene. The Second Quarter 2025 groundwater elevation data is summarized on Table 6 and illustrated on Figure 4.

REMEDATION 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? Yes

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

Approximately 230 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 1,904 barrels of impacted groundwater were removed from the dumpline excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility for recycling.

Volume of E&P Waste (solid) in cubic yards 4280

E&P waste (solid) description impacted soil

ECMC Disposal Facility ID #, if applicable: 149007

Non-ECMC Disposal Facility: Buffalo Ridge Landfill located in Keenesburg, Colorado

Volume of E&P Waste (liquid) in barrels 1904

E&P waste (liquid) description impacted groundwater

ECMC Disposal Facility ID #, if applicable: 434766

Non-ECMC Disposal Facility:

REMEDATION COMPLETION REPORT

REMEDATION 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. 08/07/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/03/2023

Proposed site investigation commencement. 08/03/2023

Proposed completion of site investigation. 09/30/2026

REMEDIAL ACTION DATES

Proposed start date of Remediation. 08/07/2023

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 F27s (Document #404150723, submitted 5/19/25) is still in process with the ECMC.

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: 08/15/2025 _____

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: Taylor Robinson _____

Date: 12/31/2025 _____

Remediation Project Number: 29312 _____

COA Type**Description**

0 COA	
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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**

404307153	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
404307342	LABORATORY ANALYTICAL REPORT
404307345	LABORATORY ANALYTICAL REPORT
404307349	LABORATORY ANALYTICAL REPORT
404307350	LABORATORY ANALYTICAL REPORT
404307363	SOIL SAMPLE LOCATION MAP
404307364	SOIL SAMPLE LOCATION MAP
404307365	GROUND WATER SAMPLE LOCATION
404307366	GROUND WATER ELEVATION MAP
404307367	LOGS
404307369	PHOTO DOCUMENTATION
404310910	ANALYTICAL DATA SUMMARY TABLE(S)
404491451	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 13 Files

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

Environmental	Operator to note, NFA will only be considered after four consecutive clean quarters of groundwater monitoring are achieved, post soil remediation.	12/31/2025
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Total: 1 comment(s)