

State of Colorado
Energy & Carbon Management Commission

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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: <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) 929-4307</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80217-3779</u>		Mobile: <u>()</u>
Contact Person: <u>Max Moran</u>	Email: <u>DJRemediation_Forms@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 36540 Initial Form 27 Document #: 403849127

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: Request Director's Approval of site-specific waste profile.

SITE INFORMATION

Yes Multiple Facilities

Facility Type: <u>TANK BATTERY</u>	Facility ID: <u>487130</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>MARKHAM 34 35 13-8 Facility</u>	Latitude: <u>40.148634</u>	Longitude: <u>-104.693865</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSW</u>	Sec: <u>8</u>	Twp: <u>2N</u>	Range: <u>65W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>489375</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Markhm 34 35 13-8 Facility</u>	Latitude: <u>40.148695</u>	Longitude: <u>-104.694060</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSW</u>	Sec: <u>8</u>	Twp: <u>2N</u>	Range: <u>65W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Occupied Buildings

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

Water well 520 feet (ft) northwest. Occupied Buildings 480 ft north, 880 ft southeast. Livestock 600 ft north, 850 ft northwest, and 970 ft southeast. County Road 760 ft west and 1,000 ft south. Agriculture 1,050 ft south.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | _____ |
| <input checked="" type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input checked="" type="checkbox"/> Condensate | <input type="checkbox"/> Pigging Waste | |
| <input type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash | |
| <input type="checkbox"/> Drill Cuttings | <input type="checkbox"/> Spent Filters | |
| | <input type="checkbox"/> Pit Bottoms | |
| | <input type="checkbox"/> 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	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 Markham 34 35 13-8 facility on October 10, 2024. Groundwater was not encountered during facility decommissioning activities. Visual inspection and field screening of soil at one aboveground storage tank (AST), one produced water vessel (PWV), one dumphine pothole location, one emission control device (ECD), one meter house, and one separator were conducted following removal activities. Soil samples (AST01@0.5', PWV-N01@2', PWV-B01@4', SEP01-INLET@3', and SEP01-OUTLET@3') were submitted for analysis of full list Table 915-1 constituents to determine if a release occurred. Initial laboratory analytical results indicated that naphthalene impacts exceeding the ECMC Table 915-1 allowable level were present at the SEP01-OUTLET@3' location. A verification sample was collected at the SEP01-OUTLET@3' location to confirm the initial results. Final analytical results were non-detect and therefore a Form 19 Report was not submitted at the time. Per updated ECMC guidance, verification sampling of organic exceedances is not considered valid. As such, a Form 19 Initial/Supplemental Spill/Release report (Document No. 404100036) was submitted on February 21, 2025 and the ECMC issued Spill/Release Point ID is 489375. Analytical results indicate that all other samples collected during facility decommissioning activities were in compliance with the Table 915-1 allowable levels or within background levels. The facility is depicted on Figure 1. The PID readings and soil sample results are summarized in Tables 1 and 2, respectively.

Assessment activities are ongoing and will be summarized in a subsequent Form 27 Supplemental report.

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):

Between September 10 and April 7, 2025, excavation activities were conducted to address the remaining soil impacts at the separator outlet and five confirmation soil samples were collected from the base and sidewalls of the excavation extents at 6 and 3 ft below ground surface (bgs), respectively. The confirmation samples were submitted for analysis of the site-specific waste profile including polycyclic aromatic hydrocarbons (PAHs), boron, and select Table 915-1 metals, using ECMC-approved methods. Laboratory analytical results indicate that soil at the excavation extents is within the ECMC Table 915-1 allowable levels or background levels. The laboratory analytical report is attached.

Proposed Groundwater Sampling

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

Groundwater was not encountered during facility decommissioning 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):

On October 10, 2024, visual inspections and field screening of soil were conducted at the base and loadout for the AST, three sidewalls of the PWV excavation, one dumphine location, one ECD location, and one meter house 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. A photographic log is attached.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 14

Number of soil samples exceeding 915-1 11

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

Approximate areal extent (square feet) 43

NA / ND

ND Highest concentration of TPH (mg/kg) _____

-- Highest concentration of SAR 0.64

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 6

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?

One tank battery background soil sample (TB-BG01@0.5') was collected from the soil used to construct the tank battery for comparison to shallow soil samples collected within the fill material. Eight background soil samples (NATIVE-BG01@2.5' through NATIVE-BG04@2.5' and NATIVE-BG01@5' through NATIVE-BG04@5') were collected from the native material outside of the facility excavations. Sixteen background soil samples were collected as part of the Markham 13, 34, 35-8 wellhead decommissioning activities, located 50 ft north, from similar depths (3 and 6 ft bgs), and NRCS soil type (loamy sand). The background soil samples were submitted for laboratory analysis of pH, electrical conductivity (EC), sodium adsorption ratio (SAR), boron, and Table 915-1 metals, using ECOMC-approved methods. Laboratory results indicate that levels of pH, arsenic, barium, and selenium are naturally high in the native soil. The background samples are depicted on Figures 1 and 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?

Assessment activities are ongoing and will be summarized in a subsequent Form 27 Supplemental report.

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.

Impacted soil will be removed and transported to a licensed disposal facility. Final disposal information will be provided upon completion of excavation activities. Disposal records will be kept on file and available upon request. The excavation areas will be 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 all soil at the excavation extents is within the ECMC Table 915-1 allowable levels or background levels. Groundwater was not encountered during facility decommissioning activities. Assessment activities are ongoing and will be summarized in a subsequent Form 27 Supplemental report.

Soil Remediation Summary

In Situ

Ex Situ

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

- _____ 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 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: \$ 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. 02/19/2025

Actual Spill or Release date, or date of discovery. 10/14/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/10/2024

Proposed site investigation commencement. 10/10/2024

Proposed completion of site investigation. 12/16/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 10/10/2024

Proposed date of completion of Remediation. 12/16/2025

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

A waste characterization was developed after initial samples were run for full list Table 915-1 at the separator location. Benzene, toluene, ethylbenzene, total xylenes (BTEX), 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, and total petroleum hydrocarbons (TPH) were non-detect (ND). EC, SAR, and pH were below the ECMC Table 915-1 cleanup concentrations. Hexavalent Chromium, copper, selenium, silver, and zinc were reported below the laboratory detection limit. Based on the attached waste characterization data, KMOG proposes an amended sampling and analysis plan to only include PAHs, boron, and select Table 915-1 metals for the confirmation soil samples at the separator excavation extents.

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

Signed: Max Moran _____

Title: Environmental Advisor _____

Submit Date: 08/18/2025 _____

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: Laurel Anderson _____

Date: 09/04/2025 _____

Remediation Project Number: 36540 _____

COA Type**Description**

	<p>Operator has already conducted further site investigation using their proposed "site-specific waste profile" prior to requesting and receiving Director Approval of reduced list of contaminants of concern. Based on the information provided herein ECMC accepts Operator's request for approval of the site-specific waste profile; however, in the future Per ECMC Rule 915.e.(2)C. Operator shall analyze soil samples for complete Table 915-1 Contaminants of Concern until Operator has submitted sufficient characterization data to request and receive Director Approval of reduced list of contaminants of concern.</p> <p>Director approval of a reduced list of contaminants of concern is required PRIOR TO commencement of further site investigation using a reduced list of contaminants of concern.</p>
	<p>In the Source Removal Summary Operator states: "Impacted soil will be removed and transported to a licensed disposal facility. Final disposal information will be provided upon completion of excavation activities. Disposal records will be kept on file and available upon request." Operator shall update the relevant sections and attach all soil disposal manifests to the next Supplemental Form 27.</p>
2 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.

Att Doc Num**Name**

404241454	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
404241488	ANALYTICAL DATA SUMMARY TABLE(S)
404241489	PHOTO DOCUMENTATION
404241490	LABORATORY ANALYTICAL REPORT
404241491	SOIL SAMPLE LOCATION MAP
404241493	SOIL SAMPLE LOCATION MAP
404342135	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)