

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Candice (Nikki) Graber

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 Phone: <u>(970) 515-1110</u> Mobile: <u>()</u>
Address: <u>P O BOX 173779</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>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 27567 Initial Form 27 Document #: 403305355

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>310674</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>MEGAN H16-99HZ</u>	Latitude: <u>40.221687</u>	Longitude: <u>-104.677196</u>	
** correct Lat/Long if needed: Latitude: <u>40.220815</u>		Longitude: <u>-104.677426</u>	
QtrQtr: <u>SWSW</u>	Sec: <u>16</u>	Twp: <u>3N</u>	Range: <u>65W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>484373</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>UPRC H17-99HZ O SA Tank Battery</u>	Latitude: <u>40.220815</u>	Longitude: <u>-104.677426</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSW</u>	Sec: <u>16</u>	Twp: <u>3N</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 Crop Land

Is domestic water well within 1/4 mile? No

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: none
Surface water: none
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
Yes	GROUNDWATER	TBD	Groundwater samples/laboratory analytical results
Yes	SOILS	60' (N-S) x 60' (E-W) x 35' 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 UPRC H17-99HZ O SA production facility on April 18 through 28, 2023. Groundwater was encountered at approximately 32' below ground surface (bgs) during excavation activities. Visual inspection and field screening of soils at two separators, two meter houses, two produced water vessels (PWV), two emission control devices (ECD), and three aboveground storage tanks (AST) were conducted following removal activities and soil samples (SEP-B01@4', SEP-B02@4', SEP-B03@4', SEP-B04@4', PW-B01@5', PW-N01@3', PW-B02@5', PW-W02@3', AST-B02@3", AST-B03@3", AST-B05@3") were submitted for laboratory analysis to determine if a release occurred. Laboratory analytical results indicated that naph. and TMBs in the separator soil samples and TPH, naph., TMBs, 1,2-methylnaphthalene, and barium concentrations in the PWV soil samples exceeded the applicable ECOM Table 915-1 standards and/or background limits. As such, a Form 19-Initial Spill/Release Report (Document No. 403382071) was submitted on April 25, 2023, and the ECOM issued Spill/Release Point ID 484373. On May 5, 2023, excavation activities were completed at the location of the former separators. Soil samples were collected from the separators excavation and submitted for laboratory analysis of BTEX, TPH, naph., TMBs, select PAHs, and select metals based on waste characterization sample SEP-B04@4'. Analytical results indicated the soil samples collected from the final separator excavation extents were in compliance with Table 915-1 standards and/or 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 is presented in Table 1. The facility soil sample and field screening locations are illustrated on Figures 2-6. 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):

From May 23, 2023 through May 17, 2024, excavation activities were completed at the location of the former ASTs and PVWs. Soil samples were collected from the base and sidewalls of the current excavation extent ranging at depths of approximately 2.5' to 35' bgs. Groundwater was encountered at approximately 32' bgs during excavation activities. Based on the results for waste characterization (PW-B01@5'), soil samples have been submitted for laboratory analysis of ethylbenzene, total xylenes, TPH, naph., TMBs, PAHs, and Table 915-1 Metals using ECOM approved methods. Analytical results indicate that barium soil impacts exceeding the ECOM Table 915-1 standard and background limits remain in the excavation area. However, Kerr-McGee is requesting the Director's approval to leave the remaining impacts in-place at this time due to the presence of groundwater within the excavation, to be addressed through quarterly groundwater monitoring.

Proposed Groundwater Sampling

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

Groundwater was encountered in the PWV excavation at approx. 32' bgs. On October 11, 2023, a groundwater sample was collected from the PWV excavation (GW-01) and submitted for laboratory analysis of BTEX, naph., and TMBs by USEPA Method 8260D as approved in the Form 27-Initial (Document No. 403305355). Analytical results indicated that the benzene concentration in GW-01 exceeded the Table 915-1 standard as summarized in Table 6. The groundwater sample location is illustrated in Figure 4. Based on the barium impacts being left in place, KMOG is proposing the following. During the 1st quarter, groundwater samples will be submitted for full Table 915-1 analytical suite and dissolved Ba to confirm groundwater compliance with full Table 915-1 constituents and WQCC Reg. 41 standards for Ba.

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):

Pending analytical results from the first quarter of sampling, a reduced list of analytes may be requested for ECMC approval.

On April 18 through 28, 2023, visual inspection and field screening of soils was conducted at soils at two meter houses, six sidewalls of two produced water vessels (PWV), two emission control devices (ECD), and three aboveground storage tanks (AST). Based on the inspection and screening results, no soil samples were submitted from these areas in accordance with ECMC Operator Guidance.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil	NA / ND
Number of soil samples collected <u>76</u>	-- Highest concentration of TPH (mg/kg) <u>1164.2</u>
Number of soil samples exceeding 915-1 <u>76</u>	-- Highest concentration of SAR <u>3.23</u>
Was the areal and vertical extent of soil contamination delineated? <u>No</u>	BTEX > 915-1 <u>No</u>
Approximate areal extent (square feet) <u>3600</u>	Vertical Extent > 915-1 (in feet) <u>35</u>
Groundwater	
Number of groundwater samples collected <u>1</u>	-- Highest concentration of Benzene (µg/l) <u>16.6</u>
Was extent of groundwater contaminated delineated? <u>No</u>	-- Highest concentration of Toluene (µg/l) <u>3.64</u>
Depth to groundwater (below ground surface, in feet) <u>32</u>	-- Highest concentration of Ethylbenzene (µg/l) <u>6.78</u>
Number of groundwater monitoring wells installed <u>0</u>	-- Highest concentration of Xylene (µg/l) <u>84.5</u>
Number of groundwater samples exceeding 915-1 <u>1</u>	NA Highest concentration of Methane (mg/l) <u></u>

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-BG05@13'-PW-BG07@13' and PW-BG05@20'-PW-BG07@20' were collected from native material adjacent to the facility. Additionally, background soil samples were collected from native material from similar soil type, depth, and land use adjacent to the nearby Megan H 16-33 O SA Facility, and Megan H16-99HZ and UPRC H17-99HZ (within approximately 1000') wellheads are included. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and metals using standard methods appropriate for detecting target analytes in Table 915-1. Additional background soil samples will be collected. Analytical results for the background soil samples are presented in Tables 3-5.

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?

Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining soil impacts. A background groundwater sample will be collected and submitted for laboratory analysis of TDS, sulfate ions, and chloride ions to establish background levels.

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 April 28, 2023 through May 17, 2024, approximately 2,350 cubic yards of impacted material were excavated and transported to the Buffalo Ridge Landfill, located in Keenesburg, Colorado for disposal; approximately 1,990 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Laboratory analytical results indicate that barium impacts exceeding ECMC Table 915-1 standards and site-specific background limits remain at the site. However, Kerr-McGee is requesting the Director's approval to delineate remaining soil impacts during monitoring well installation activities and assess groundwater compliance through quarterly groundwater monitoring. 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 barium impacts exceeding ECMC Table 915-1 standards and site-specific background limits remain at the site. However, Kerr-McGee is requesting the Director's approval to delineate remaining soil impacts during monitoring well installation activities and assess groundwater compliance through quarterly groundwater monitoring. Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining groundwater impacts. 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

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 4340

_____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____ 149007

_____ Natural Attenuation

_____ Excavate and onsite remediation

_____ Other _____

_____ 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 barium impacts being left in place, KMOG is proposing the following. During the 1st quarter, groundwater samples will be submitted for full Table 915-1 analytical suite and dissolved Ba to confirm groundwater compliance with full Table 915-1 constituents and WQCC Reg. 41 standards for Ba. Pending analytical results from the first quarter of sampling, a reduced list of analytes may be requested for ECMC approval. 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 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: \$ 19500 _____

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 1,990 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 4340

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 0

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 Remediation 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. 01/17/2023

Actual Spill or Release date, or date of discovery. 04/24/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/18/2023

Proposed site investigation commencement. 04/18/2023

Proposed completion of site investigation. 12/31/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/24/2023

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

Based on the results of the initial groundwater sample, soil impacts observed at 30' bgs, and the barium impacts being left in place, KMOG is proposing the following. During the 1st quarter, groundwater samples will be submitted for full Table 915-1 analytical suite and dissolved Ba to confirm groundwater compliance with full Table 915-1 constituents and WQCC Reg. 41 standards for Ba. Pending analytical results from the first quarter of sampling, if TDS, sulfate ions, and chloride ions are in compliance with Table 915-1 and/or site-specific background limits, KMOG will continue groundwater monitoring sampling for BTEX, naphthalene, TMBs, and dissolved barium only.

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

Signed: Macy Kiel

Title: HSE Advisor

Submit Date: 08/29/2024

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: Candice (Nikki) Graber

Date: 10/31/2024

Remediation Project Number: 27567

COA Type**Description**

	Operator shall collect a sample from each soil boring during monitoring well installation for Full Table 915-1.
	Four consecutive quarters of compliant groundwater monitoring are required for inorganics and barium.
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**

403859405	FORM 27-SUPPLEMENTAL-SUBMITTED
403866258	PHOTO DOCUMENTATION
403866260	SITE MAP
403866264	SOIL SAMPLE LOCATION MAP
403866265	SOIL SAMPLE LOCATION MAP
403866266	SOIL SAMPLE LOCATION MAP
403866267	ANALYTICAL RESULTS
403904247	SOIL SAMPLE LOCATION MAP
403904253	SOIL SAMPLE LOCATION MAP
403904257	ANALYTICAL RESULTS

Total Attach: 10 Files

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

Environmental	Only impacts below Residential Soil Screening Level may be addressed through groundwater monitoring.	10/31/2024
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Total: 1 comment(s)