

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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403915516

Receive Date:

09/13/2024

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: KERR MCGEE OIL & GAS ONSHORE LP	Operator No: 47120	Phone Numbers
Address: P O BOX 173779		Phone: (720) 929-4306
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Erik Mickelson	Email: DJRemediation_Forms@oxy.com	Mobile: ()

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 30852 Initial Form 27 Document #: 403458665

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: TANK BATTERY	Facility ID: 328592	API #: _____	County Name: WELD
Facility Name: WOOLLEY-62N68W 34NESW	Latitude: 40.092190	Longitude: -104.993378	
** correct Lat/Long if needed: Latitude: 40.091979		Longitude: -104.993567	
QtrQtr: NESW	Sec: 34	Twp: 2N	Range: 68W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE	Facility ID: 485214	API #: _____	County Name: WELD
Facility Name: Wooley 34-11M,34-13JI O SA Hist Rel	Latitude: 40.091976	Longitude: -104.993579	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NESW	Sec: 34	Twp: 2N	Range: 68W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SC

Most Sensitive Adjacent Land Use Residential

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

Multiple buildings and livestock holding pens are located within 1/4 mile of the facility.
The nearest building is located approximately 200 feet southeast of the facility.
The nearest domestic water well is located approximately 400 feet southwest of the facility.

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	See attached data	Groundwater samples/laboratory analytical results
Yes	SOILS	50' (N-S) x35' (E-W) x16' 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.

Tank battery decommissioning activities were completed at the Wooley 34-11M, U 34-13JI O SA production facility location on September 29, 2023. Visual inspection and field screening of soils was conducted at the former production facility infrastructure locations following decommissioning activities, and five (5) soil samples were collected from the former separator (SEP), above-ground storage tank (AST), and produced water vessel (PWV) locations, as described in a previous Form 27-Supplemental update (Document No. 403655461). Analytical results indicated that soil impacts were present at sample location AST-B01 @3" due to TMB and PAHs concentrations above Table 915-1 standards. As such, a Form 19-Initial/Supplemental Spill/Release Report (Document No.403547007) was submitted on October 2, 2023, and the ECMC issued Spill/Release Point ID 485214. Analytical results indicated that the remaining constituent concentrations in the soil samples collected during facility decommissioning activities were in compliance with ECMC Table 915-1 standards and/or within site-specific background levels (x 1.25 for metals). During subsequent over-excavation activities at the former AST location, groundwater was encountered at approximately 16 feet below ground surface (bgs), and a groundwater sample was collected as described herein. Soil and groundwater sample location and field screening data are presented in Table 1. Soil and groundwater analytical results are summarized in Tables 2 through 6. The facility decommissioning soil sample and field screening locations are illustrated on Figure 1. The excavation soil and groundwater sample locations are illustrated on Figure 2.

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 October 17, 2023 through April 10, 2024, excavation activities were conducted to address remaining soil impacts at the former AST location. Confirmation and soil samples were collected from the base and sidewalls of the final excavation area, at depths ranging from approximately 4 to 16 feet below ground surface (bgs). Based on the analytical results for waste characterization samples AST-B01 @3" and AST-B08@13', the confirmation soil samples were submitted for laboratory analysis of BTEX, TPH, TMB, PAHs, pH, and select Table 915-1 metals (As, Ba, Cd, Cu, Pb, Ni, Se, and Zn). Analytical results indicate that constituent concentrations in the final confirmation and/or verification soil samples collected from the AST excavation area were in compliance with Table 915-1 standards and/or within site-specific background levels (x 1.25 for metals).

Proposed Groundwater Sampling

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

On April 10, 2024, groundwater was encountered in the AST excavation area at approximately 16 feet bgs. On April 10, 2024 groundwater sample GW01 was collected and submitted for laboratory analysis of BTEX, naphthalene, 1,2,4- and 1,3,5-TMB, by USEPA Method 8260D. Analytical results indicate that the 1,2,4- and 1,3,5-TMB concentrations in groundwater sample GW01 exceeded the ECMC Table 915-1 standards. The groundwater sample location is illustrated on Figure 2, and groundwater analytical results are summarized in Table 6. Temporary groundwater monitoring wells will be installed to define the extent and magnitude of the potential remaining groundwater impacts associated with sample GW01. The groundwater sample location and proposed monitoring well locations are illustrated on Figure 3.

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 September 29, 2023, visual inspection and field screening of soils was conducted at 1 location below the former AST, 3 sidewall locations within the PWV removal excavation area, 1 location at the former meter house (MH), and 1 location at the former enclosed combustion device (ECD), as described in a previous Form 27-Supplemental update (Document No. 403655461). Soil sample location and field screening data are presented in Table 1. Soil and groundwater analytical results are summarized in Tables 2 through 6. The facility decommissioning soil sample and field screening locations are illustrated on Figure 1. The excavation soil and groundwater 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.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 34

Number of soil samples exceeding 915-1 4

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

Approximate areal extent (square feet) 1750

NA / ND

-- Highest concentration of TPH (mg/kg) 593

-- Highest concentration of SAR 5.46

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 16

Groundwater

Number of groundwater samples collected 1

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 16

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 1

ND Highest concentration of Benzene (µg/l)

-- Highest concentration of Toluene (µg/l) 2.12

-- Highest concentration of Ethylbenzene (µg/l) 4.3

-- Highest concentration of Xylene (µg/l) 122

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?

Twenty-one (21) background soil samples were collected from undisturbed native material adjacent to the former production facility, at comparable depths and soil composition to the confirmation soil samples. Additionally, twenty-nine (29) background soil samples were collected from undisturbed native material adjacent to the associated Woolley U 34-13JI wellhead and flowline locations, at comparable depths and soil composition to the confirmation soil samples. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and Table 915-1 metals using standard ECMC-approved methods appropriate for detecting the target analytes in Table 915-1. Analytical results for the background soil samples are presented in Table 4 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?

Temporary groundwater monitoring wells will be installed to define the extent and magnitude of the potential remaining groundwater impacts associated with sample GW01.

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.

On October 17, 2023 through April 10, 2024, approximately 810 cubic yards of impacted material were removed from the AST excavation area and transported to the Front Range Landfill in Erie, Colorado for disposal; approximately 140 cubic yards of impacted material were removed from the AST excavation area and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Approximately 15 barrels of impacted groundwater were removed from the excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling. The excavation area was subsequently backfilled and re-graded to match pre-existing site conditions.

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.

Analytical results indicate that constituent concentrations in the final confirmation and/or verification soil samples collected from the AST excavation area were in compliance with Table 915-1 standards and/or within site-specific background levels (x 1.25 for metals). Analytical results indicate that the 1,2,4- and 1,3,5-TMB concentrations in groundwater sample GW01 exceeded the ECMC Table 915-1 standards. Temporary groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the potential remaining groundwater impacts associated with sample GW01. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of the ECMC Table 915-1 groundwater constituents. Laboratory analytical results indicated that the remaining constituent concentrations in the soil samples collected during facility decommissioning activities were in compliance with ECMC Table 915-1 standards and/or within site-specific background levels (x 1.25 for metals). Hydrocarbon-impacted soil was not observed during field inspection and soil screening activities at the former production facility infrastructure locations. 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) 950

_____ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or ECMC Facility ID # _____

_____ Natural Attenuation

No _____ Excavate and onsite remediation

_____ Other _____

_____ Land Treatment

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Other _____

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.

Groundwater monitoring wells will be installed to fully define the extent and magnitude of the potentially remaining groundwater impacts associated with sample location GW01. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of Table 915-1 constituents. The groundwater sample location and proposed temporary monitoring well locations are illustrated on Figure 3. Groundwater analytical data is presented in Table 6. Subsequent to installation, a groundwater monitoring location figure illustrating the locations of the surveyed temporary groundwater 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 Remediation Progress Update

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 Colorado 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: \$ 45000

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 15 barrels of impacted groundwater were removed from the excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 950

E&P waste (solid) description Impacted Soil

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Front Range Landfill - Erie, Colorado;
Buffalo Ridge Landfill - Keenesburg,
Colorado

Volume of E&P Waste (liquid) in barrels 15

E&P waste (liquid) description Impacted groundwater

ECMC Disposal Facility ID #, if applicable: 434766

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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

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. Timeliness of reclamation initiation and completion will be subject to NFA, surface owner discretion and land use, and suitable ground conditions which allow for execution of surface reclamation activities so as to not cause unwarranted damages.

Is the described reclamation complete? No

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? Yes

If YES, does the seed mix comply with local soil conservation district recommendations? Yes

Did the local soil conservation district provide the seed mix? No

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. 10/02/2023

Actual Spill or Release date, or date of discovery. 10/02/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/29/2023

Proposed site investigation commencement. 09/29/2023

Proposed completion of site investigation. 12/31/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 10/17/2023

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

Analytical results indicate that constituent concentrations in the final confirmation and/or verification soil samples collected from the AST excavation area were in compliance with Table 915-1 standards and/or within site-specific background levels (x 1.25 for metals). As such, soil remediation is complete at the former Wooley 34-11M, U 34-13JI O SA production facility location, and no further soil assessment is required, based on the analytical and soil screening data presented herein.

Temporary groundwater monitoring wells will be installed to fully define the extent and magnitude of the potentially remaining groundwater impacts associated with sample GW01. Form 27-Supplemental Updates will be submitted to the ECMC on a quarterly basis until the extent of groundwater impacts has been fully delineated.

A thorough technical review of all laboratory analytical data associated with this site has been completed per the ECMC COA dated 8/28/2024. No alterations of data in any of the laboratory analytical reports were identified. A superfluous comment was found on page 187 of the combined analytical attachment PDF file, consistent with the note on the COA. However, this comment did not alter any data or result in any changes to the form, attachments or site status. To avoid any confusion the laboratory report Y403102 has been replaced with the original report received from the laboratory.

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: 09/13/2024

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: 11/22/2024

Remediation Project Number: 30852

COA Type

Description

	ECMC does not approve the site specific background limit for barium as 4,300 mg/kg as listed on the attached table. The sample used for this calculation was outlier sample of BG08@8' with barium at 3,440 mg/kg; the next highest sample was BG07@8' with barium at 242 mg/kg. Operator shall omit outliers such as this on all future background determinations. On the next supplemental Form 27 Operator shall discuss barium remaining in situ as well as an altered background determination.
	Operator shall provide boring logs in accordance with standard environmental practices. This includes at a minimum; lithology description, USCS classifications, PID readings, sample collection depths, depth to water, and well construction.
	Operator shall submit a minimum of one soil sample for laboratory analysis of Full Table 915-1 from each soil boring advanced during monitoring well installation.
3 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

403915516	FORM 27-SUPPLEMENTAL-SUBMITTED
403919969	ANALYTICAL RESULTS
403919971	PHOTO DOCUMENTATION
403919973	SOIL SAMPLE LOCATION MAP
403919974	SOIL SAMPLE LOCATION MAP
403919976	GROUND WATER SAMPLE LOCATION
403919977	SOIL SAMPLE LOCATION MAP
403919979	ANALYTICAL RESULTS

Total Attach: 8 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)