

State of Colorado Energy & Carbon Management Commission

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Report taken by:

Alexander Ahmadian

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 COGCC 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: (970) 336-3500
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Phillip Hamlin	Email: Phillip_Hamlin@oxy.com	Mobile: ()

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 18896 Initial Form 27 Document #: 402735843

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

No Multiple Facilities

Facility Type: LOCATION	Facility ID: 328523	API #: _____	County Name: WELD
Facility Name: ANDERSON UPRR-63N66W 9SWNE	Latitude: 40.241780	Longitude: -104.780250	
** correct Lat/Long if needed: Latitude: 40.246569		Longitude: -104.778597	
QtrQtr: SWNE	Sec: 9	Twp: 3N	Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Occupied buildings and Agriculture

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

Groundwater is found at 4 ft bgs.

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	See attached data	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.

The previous Form 27 (Doc# 403126791) summarizes assessment activities conducted during the closure of the Anderson UP 32-9A/UP O SA Facility. An above ground storage tank (AST), produced water vessel (PWV), separator, meter house, and emission control device (ECD) were permanently removed. Assessment activities began on August 10, 2021. Soil and groundwater assessment activities were conducted in accordance with Energy & Carbon Management Commission (ECMC) Rule 911.a formerly known as Colorado Oil & Gas Conservation Commission (COGCC).

On August 11, 2021, upon receipt of the laboratory analytical report for samples collected on August 10, 2021, historically impacted soil was discovered in the facility excavation. Laboratory analytical results indicated the separator soil samples for Sep01-Inlet@3' and Sep01-Outlet@3' exceeded the ECMC Table 915-1 allowable levels for 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, ethylbenzene, and/or total petroleum hydrocarbons (TPH). The release was reported to the ECMC in the Form 19 Initial dated August 13, 2021 (Document No. 402777036). The volume of the release is unknown. The impacted soil was excavated.

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 August 10, 2021 and January 14, 2022, soil samples were collected from the AST, PWV, separator, meter house, ECD, and ancillary piping (see Figure 1). The soil samples were field screened for total volatile organic compounds using a photoionization detector (PID). Based on PID readings, select soil samples were collected from the AST, PWV, meter house, and ECD and submitted for laboratory analysis. The impacted soil was excavated. Analytical results indicated soil was compliant with Table 915-1 standards or within the analytical variability of the background samples at the extents of the excavations. Therefore, further excavation was not warranted. Additionally, five soil samples were collected during the installation of monitoring wells MW01 through MW05 on March 27, 2023. The soil sampling laboratory results are included in Attachment A and the boring logs are included in Attachment B.

Proposed Groundwater Sampling

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

On August 10, 2021, two groundwater samples (GW01 and GW02) were collected from the PWV and separator excavations for the full list of Table 915-1 analyses. One background groundwater sample (GW-BG01) was also collected to assess the natural levels for inorganic analyses. Laboratory analytical results indicated groundwater in the separator excavation exceeded Table 915-1 standards for benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. The excavation groundwater and background groundwater sample locations are depicted on Figure 1. The groundwater sample analytical results are summarized in Table 1. On April 27, 2023, five groundwater monitoring wells (MW01 through MW05) were installed around GW01 to further delineate the extent of groundwater impacts (Figure 1). The wells were surveyed in Second Quarter 2023. Soil and groundwater analytical results are provided as Attachment A and the project implementation schedule is included as Attachment C.

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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 65

Number of soil samples exceeding 915-1 47

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

Approximate areal extent (square feet) 5898

NA / ND

-- Highest concentration of TPH (mg/kg) 1386

-- Highest concentration of SAR 13.9

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 17

Groundwater

Number of groundwater samples collected 8

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 4

Number of groundwater monitoring wells installed 5

Number of groundwater samples exceeding 915-1 1

-- Highest concentration of Benzene (µg/l) 284

-- Highest concentration of Toluene (µg/l) 4.65

-- Highest concentration of Ethylbenzene (µg/l) 105

-- Highest concentration of Xylene (µg/l) 1150

ND 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?

Eight native background soil samples and one tank battery background soil sample were collected for laboratory analysis of pH, specific conductivity (EC), sodium adsorption ratio (SAR), boron, and metals. Laboratory analytical results indicated that EC, SAR, pH, arsenic, barium, and/or selenium levels are naturally high in the native and/or tank battery soil.

One background groundwater sample was collected for laboratory analysis as a representative background sample for calculating the inorganic parameters in Table 915-1.

☐ 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 results of the latest groundwater monitoring event, no additional monitoring wells are required at this site.

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.

Approximately 4035 barrels of petroleum hydrocarbon impacted soil and groundwater slurry were removed from the site and transported to Aggregate Recycle Facility (ARF), for recycling. Approximately 553 cubic yards of petroleum hydrocarbon impacted soil were removed from the site and transported to Kerr-McGee Land Treatment Facility, for recycling. Approximately 30 cubic yards of impacted soil were removed from the site and transported to Front Range Landfill in Erie, Colorado, for disposal. Approximately 1587 cubic yards of impacted soil were removed from the site and transported to Buffalo Ridge Landfill in Keenesburg, Colorado, for disposal. Disposal records are kept on file and available upon request.

REMEDATION 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.

The impacted soil has been excavated and transported to a licensed disposal facility.

Soil Remediation Summary

☒ In Situ

No Bioremediation (or enhanced bioremediation)

No Chemical oxidation

No Air sparge / Soil vapor extraction

Yes Natural Attenuation

Other

☒ Ex Situ

Yes Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) 1617

Name of Licensed Disposal Facility or COGCC Facility ID # _____

Excavate and onsite remediation

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

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.

The newly installed groundwater monitoring wells were sampled in Second Quarter 2023 and the wells were surveyed to determine the groundwater flow direction. A groundwater elevation contour map using Second Quarter 2023 monitoring data is included as Figure 2. Groundwater monitoring activities will be conducted on a quarterly schedule and samples will be submitted for laboratory analysis of full list Table 915-1 analytes. A project implementation schedule is attached (Attachment C).

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: \$ 35000

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 4035 barrels of petroleum hydrocarbon impacted soil and groundwater slurry were removed from the site and transported to Aggregate Recycle Facility (ARF), for recycling. Approximately 553 cubic yards of petroleum hydrocarbon impacted soil were removed from the site and transported to Kerr-McGee Land Treatment Facility, for recycling.

Volume of E&P Waste (solid) in cubic yards 1617

E&P waste (solid) description Historically Impacted Soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Front Range Landfill in Erie, Colorado
and Buffalo Ridge Landfill in
Keenesburg, Colorado

Volume of E&P Waste (liquid) in barrels 0

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC 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 COGCC 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. 08/11/2021

Actual Spill or Release date, or date of discovery. 08/11/2021

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/10/2021

Proposed site investigation commencement. 08/10/2021

Proposed completion of site investigation. 08/31/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 08/10/2021

Proposed date of completion of Remediation. 08/31/2026

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

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

Signed: Phillip Hamlin

Title: Senior Environmental Rep

Submit Date: 09/01/2023

Email: Phillip_Hamlin@oxy.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: Alexander Ahmadian

Date: 10/17/2023

Remediation Project Number: 18896

COA Type**Description**

0 COA	

Attachment Check 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**

403489440	FORM 27-SUPPLEMENTAL-SUBMITTED
403489757	ANALYTICAL RESULTS
403489758	ANALYTICAL RESULTS
403494767	LOGS
403501331	ANALYTICAL RESULTS
403501351	ANALYTICAL RESULTS
403501356	IMPLEMENTATION SCHEDULE
403501358	SITE MAP
403501359	GROUND WATER ELEVATION MAP

Total Attach: 9 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)