FORM 27 Rev 5/22

State of Colorado
Oil and Gas Conservation 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 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 INFORMATON

Name of Operator: KERR MCGEE OIL & GAS ONSHORE LP Operator No: 47120
Address: P O BOX 173779
City: DENVER State: CO Zip: 80217-3779
Contact Person: Gregory Hamilton Email: Gregory_Hamilton@oxy.com

Phone Numbers
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PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 24884 Initial Form 27 Document #: 403158691

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.
- [X] 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: LOCATION Facility ID: 318259 API #: County Name: WELD
Facility Name: WILLIAM DEASON GAS UNIT-61N66W 6NWSE Latitude: 40.076840 Longitude: -104.818120
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: NWSE Sec: 6 Twp: 1N Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 482371 API #: County Name: WELD
Facility Name: Deason William GU 1 Tank Battery Latitude: 40.077534 Longitude: -104.818122
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: NWSE Sec: 6 Twp: 1N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications CH

Most Sensitive Adjacent Land Use Residential

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

The nearest building is located approximately 180 feet northeast of the facility.
The nearest domestic water well is located approximately 290 feet northeast of the facility.
Surface water is located approximately 70 feet north of the facility.
A wetland is located approximately 70 feet north of the facility.
The facility is located within a designated high-priority habitat.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [X] **E&P Waste**
  - [X] Produced Water
  - [X] Oil
  - [X] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
No	GROUNDWATER	No impacts encountered	Groundwater sampling and laboratory analysis
Yes	SOILS	44' (N-S) x 28' (E-W) x 6' bgs	Soil sampling and laboratory analysis

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

On June 13, 2022, historical soil impacts were discovered during reclamation activities at the previously decommissioned Deason William GU 1 O SA Production Facility. The COGCC issued Spill/Release Point ID 482371 for this release. On June 22, 2022, excavation activities were initiated, and initial soil and groundwater samples were collected to determine if impacts were present. Based on field observations and PID readings, soil sample REC-N01@3' was selected for waste characterization purposes and submitted for laboratory analysis of the full COGCC Table 915-1 analytical suite, using standard COGCC-approved methods appropriate for detecting the target analytes. Analytical results indicated that soil impacts were present due to polycyclic aromatic hydrocarbons (PAHs), barium (Ba), lead (Pb), and boron concentrations above COGCC Table 915-1 standards and/or site-specific background levels. Groundwater was encountered within the excavation area at approximately 3 feet below ground surface (bgs). A topographic site location map is provided as Figure 1. 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 soil and groundwater sample locations are illustrated on Figure 2.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

[X] Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

On June 22, 2022 through January 19, 2023, excavation activities were conducted to address remaining soil impacts. A total of 32 confirmation soil samples were collected from the base and sidewalls of the final excavation extent, at depths ranging from approximately 3 to 6.5 feet bgs. Based on the initial waste characterization results and the COGCC-approved analyte reduction request (Document No. 403158691), the confirmation soil samples were submitted for laboratory analysis of BTEX, 1,2,4- and 1,3,5-TMB, TPH-GRO (C6-C10), DRO (C10-C28), and ORO (C28-C40), PAHs, Ba, Pb, and boron using standard COGCC-approved methods. Analytical results indicate that constituent concentrations in the confirmation soil samples collected from the final excavation extents were in compliance COGCC standards and/or within the acceptable range of soil variability when compared to background concentrations. Soil analytical results are summarized in Tables 2 through 5.

Proposed Groundwater Sampling

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

Groundwater was encountered within the excavation area at approximately 3 feet bgs. On June 22, 2022, a groundwater sample (REC-GW01) was collected from the excavation area and submitted for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4- and 1,3,5-trimethylbenzene (TMB) by United States Environmental Protection Agency (USEPA) Method 8260D. Groundwater analytical results indicate that constituent concentrations in sample REC-GW01 were in compliance with the COGCC Table 915-1 standards. Groundwater analytical data is presented in Table 6, and the groundwater sample location is illustrated on Figure 2.

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):

Soil sample location and field screening data are presented in Table 1. Soil analytical results are summarized in Tables 2 through 5. Groundwater analytical data is presented in Table 6. The final excavation extent, over-excavated sidewall locations, and associated soil and groundwater sample locations are illustrated on Figure 1. The laboratory analytical reports for the soil samples collected since the previous Form 27-Initial Site Investigation and Remediation Workplan (Document No. 403251936) was submitted on December 7, 2022 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: 63

Number of soil samples exceeeding 915-1: 32

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

Approximate areal extent (square feet): 5500

NA / ND

-- Highest concentration of TPH (mg/kg): 34.467

-- Highest concentration of SAR: 3.36

BTEX > 915-1: No

Vertical Extent > 915-1 (in feet): 6

Groundwater

Number of groundwater samples collected: 1

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet): 3

Number of groundwater monitoring wells installed: 0

Number of groundwater samples exceeding 915-1: 0

ND Highest concentration of Benzene (µg/l)

ND Highest concentration of Toluene (µg/l)

ND Highest concentration of Ethylbenzene (µg/l)

ND Highest concentration of Xylene (µg/l)

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?

Background soil samples REC-BG01@2' - REC-BG04@2' and REC-BG01@4' - REC-BG04@4' were collected from native material adjacent to the excavation area. The background soil samples were submitted for laboratory analysis of Table 915-1 metals and Soil Suitability for Reclamation Parameters using standard methods appropriate for detecting the target analytes in Table 915-1. Analytical results for the background soil samples are presented in Tables 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?

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.

From June 22, 2022 through January 19, 2023, approximately 300 cubic yards of impacted soil were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal; and approximately 1,080 cubic yards of impacted soil were excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Following the collection of groundwater sample REC-GW01, approximately 3,780 barrels of non-impacted groundwater were removed from the excavation area via vacuum truck, for backfilling and sidewall stabilization purposes, and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling. The excavation area was subsequently backfilled and contoured 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.

Laboratory analytical results indicate that impacted soils in the excavation area have been remediated to be in compliance with the COGCC Table 915-1 standards and/or within the acceptable range of soil variability when compared to background concentrations. Laboratory analytical results indicate that constituent concentrations in the groundwater sample collected from the excavation area (REC-GW01) were in compliance with the COGCC Table 915-1 standards. Based on the analytical and soil screening data presented herein, assessment is complete at this site and no further activities are required. As such, Kerr-McGee is requesting a No Further Action (NFA) determination for this location.

Soil Remediation Summary

☐ **In Situ**

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

☒ **Ex Situ**

- Yes Excavate and offsite disposal
  - If Yes: Estimated Volume (Cubic Yards) 1380
  - Name of Licensed Disposal Facility or COGCC Facility ID # ____
- No 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 Final Report

☐ **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 NFA Request

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 Oil and Gas Conservation 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: $ 0

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 3,780 barrels of non-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 1380

E&P waste (solid) description Impacted soil

COGCC Disposal Facility ID #, if applicable:

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

Volume of E&P Waste (liquid) in barrels 3780

E&P waste (liquid) description Groundwater

COGCC Disposal Facility ID #, if applicable: 434766

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? No

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? Yes

Is additional groundwater monitoring to be conducted?

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 restored to its pre-release grade and will be reclaimed in accordance with COGCC 1000 Series Reclamation Rules.

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?

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. 06/14/2022

Actual Spill or Release date, or date of discovery. 06/13/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/13/2022

Proposed site investigation commencement. 06/22/2022

Proposed completion of site investigation. 01/19/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/22/2022

Proposed date of completion of Remediation. 01/19/2023

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 analytical and field screening data provided herein, assessment is complete at this site and Kerr-McGee is requesting an NFA determination for this location.

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

Signed: Gregory Hamilton Title: Environmental Consultant

Submit Date: 03/31/2023 Email: Gregory_Hamilton@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: Laurel Anderson Date: 07/13/2023

Remediation Project Number: 24884

COA Type	Description
	Closure request removed. Due to the presence of impacted soil in contact with groundwater Operator will install monitoring wells (within the spill/release area, cross-gradient, down-gradient, and up-gradient) to properly characterize groundwater pursuant to Rule 915. Operator will analyze groundwater samples from all monitoring wells for Table 915-1 Parameters for a minimum of four quarterly monitoring events.
	Operator shall submit a minimum of one soil sample for laboratory analysis of full Table 915- 1 Parameters - TPH (C6-C36), Table 915-1 Organic Compounds in Soil, Table 915 -1 metals, and Table 915-1 Soil Suitability for Reclamation (Electrical conductivity, Sodium adsorption ratio, and pH by saturated paste method, boron (hot water soluble)) from each soil boring advanced during monitoring well construction. -The sample collected will be from the interval(s) displaying the highest degree of impacts or in the absence of apparent impacts from the interval in which organic compounds were previously detected or the soil-groundwater interface.
	Analytical data indicates multiple soil samples onsite exceed Table 915-1 Protection of Groundwater Soil Screening Level Concentrations and/or are greater than 1.25 times the concentration in the background samples with the highest respective concentration. Operator shall define the vertical and lateral extent of impacts over Protection of Groundwater Soil Screening Level Concentrations and/or no more than 1.25 times the concentration in the background samples with the highest respective concentration prior to requesting closure.
	On the subsequent Supplemental Form 27, Operator shall update the implementation schedule to reflect ongoing site investigation and remediation.
	Operator shall continue quarterly reporting until the site investigation is complete and the implementation schedule can be updated.
5 COAs	

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
403353197	FORM 27-SUPPLEMENTAL-SUBMITTED
403353436	SITE MAP
403353437	SOIL SAMPLE LOCATION MAP
403353438	ANALYTICAL RESULTS
403353440	ANALYTICAL RESULTS
403353458	PHOTO DOCUMENTATION

Total Attach: 6 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)