FORM 27 Rev 5/22

State of Colorado
Energy & Carbon Management Commission

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Document Number: 403813984
Receive Date: 09/11/2024
Report taken by: Nick Cholas

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 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: Phil Hamlin Email: Phillip_Hamlin@oxy.com

Phone Numbers
Phone: (970) 515-1161
Mobile: ( )

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 20436 Initial Form 27 Document #: 402787685

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.
- [X] 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: 323198 API #: County Name: WELD
Facility Name: BIERIG-UPRR-64N66W 35SENE Latitude: 40.270239 Longitude: -104.737533
** correct Lat/Long if needed: Latitude: 40.269559 Longitude: -104.737545
QtrQtr: SENE Sec: 35 Twp: 4N Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 480249 API #: County Name: WELD
Facility Name: Berig 17-35 Latitude: 40.269641 Longitude: -104.737630
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SENE Sec: 35 Twp: 4N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications: SM

Most Sensitive Adjacent Land Use: Irrigation Canal 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

Platte Valley Ditch located approximately 75 feet to the southwest; domestic well located approximately 1,200 feet southwest; Occupied buildings located approximately 1,300 feet southwest

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
Yes	GROUNDWATER	See attached data.	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.

On July 28, 2021, a release daylighting from the subsurface at the Berig 17-35 location was discovered. The impacted soil was discovered while performing a pressure test of the oil dumpline between the separator and the tank at the facility. Approximately 3 gallons of oil were released during the pressure test. The release was reported to the ECMC in the Form 19 Initial dated July 29, 2021 (Document No. 402732214). The volume of the release is unknown. The impacted soil was excavated.

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):

Between July 29, 2021 and June 2, 2022, soil samples were collected from the facility excavation (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 submitted for laboratory analysis in accordance with ECMC Rule 911.a. The impacted soil was excavated. Analytical results indicated soil was in full compliance with Table 915-1 standards, or below background, at the extents of the excavation. The soil analytical results are summarized in Table 1.

Proposed Groundwater Sampling

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

On July 29, 2021, four groundwater samples were collected from the facility excavation and flowline potholes and submitted for Table 915-1 analyses. One background groundwater sample was also collected and submitted for Table 915-1 inorganic parameters. Based on the laboratory analytical results, samples GW01 and GW03 exceeded the ECMC Table 915-1 allowable levels for benzene, toluene, xylenes, 1,2,4-trimethylbenzene, and/or 1,3,5-trimethylbenzene. The excavation groundwater sample and background sample locations are depicted on Figure 2. The groundwater sample analytical results are summarized in Table 2.

Proposed Surface Water Sampling

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

On August 12, 2021, six ditch water samples (Ditch-01 through Ditch-06) and one surface water sample (SW-01) were collected and submitted for Table 915-1 organic parameters. Results were compared to ECMC Table 915-1 allowable levels for groundwater. All ditch water sample results were non-detect. Toluene was detected in surface water sample SW-01; however, the concentration of 2.57 ug/L is well below the Table 915-1 allowable level for groundwater of 560 ug/L. The surface water sample locations are depicted on Figure 3. The surface water analytical results are presented in Table 3.

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 98

Number of soil samples exceeeding 915-1 37

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

Approximate areal extent (square feet) 19886

NA / ND

-- Highest concentration of TPH (mg/kg) 1468

-- Highest concentration of SAR 421

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 13

Groundwater

Number of groundwater samples collected 36

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 1

Number of groundwater monitoring wells installed 8

Number of groundwater samples exceeding 915-1 4

-- Highest concentration of Benzene (µg/l) 1480

-- Highest concentration of Toluene (µg/l) 3070

-- Highest concentration of Ethylbenzene (µg/l) 238

-- Highest concentration of Xylene (µg/l) 4560

NA Highest concentration of Methane (mg/l)

Surface Water

7 Number of surface water samples collected

0 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 soil background soil sample and two native soil background soil samples were collected for laboratory analysis of specific conductivity (EC), sodium adsorption ratio (SAR), pH, boron, and metals. Laboratory analytical results indicated arsenic is naturally high in the soil used to construct the tank battery and the native soil. The background soil sample analytical results are summarized in Table 1. The background soil samples are depicted on Figure 1.

One background groundwater sample was also collected and submitted for Table 915-1 inorganic parameters. Laboratory analytical results indicated sulfate ion is naturally high in the native groundwater. The background groundwater sample analytical results are summarized in Table2. The background groundwater sample is depicted on Figure 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?

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 22,828 bbls of impacted water and 140 CY of impacted soil were transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 15,620 CY of impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 20 CY of impacted soil was transported to the Front Range Landfill in Erie, Colorado for disposal. Approximately 2,500 CY of impacted soil was transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Disposal records are kept on file and are available upon request.

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.

On May 22, 2023, eight groundwater monitoring wells were installed in order to determine the extent and magnitude of any remaining impacts. Quarterly groundwater monitoring of the newly-installed well network was initiated on June 26, 2023. Analytical results from all monitoring wells indicate that groundwater has remained in full compliance with Table 915-1 standards for organic constituents.

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) 18280
  - Name of Licensed Disposal Facility or ECMC Facility ID # 149007
- 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.

Groundwater monitoring wells MW01 through MW08 have been sampled on a quarterly basis for the full list of analytes for groundwater in Table 915-1. Cross-gradient and historically compliant monitoring well MW03 was established as a representative background well for calculating the inorganic parameters in Table 915-1. Point of compliance (POC) for inorganic constituents was again achieved during the first quarter 2024 monitoring event as no inorganic parameters exceeded Table 915-1 allowable levels and/or background levels. The monitoring well locations are depicted on Figure 1. The groundwater elevation contour maps for the past four monitoring events are provided as Figures 4a through 4d.

As of the March 2024 quarterly monitoring event, all monitoring wells have been in compliance with the ECMC Table 915-1 allowable levels for organic parameters for four quarters and no organic constituents have been detected above the laboratory reporting limits since excavation activities were completed at the Site. Inorganic constituents in exceedance of background levels were detected during the second quarter and fourth quarter 2023 monitoring events; however, an overall decreasing trend has been observed at each location over the previous four quarters of monitoring.

As such, Kerr-McGee is requesting a no further action ruling at this location. The groundwater analytical results are summarized in Table 2. The laboratory reports for the previous four groundwater monitoring events are attached.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

[X] Quarterly [ ] Semi-Annually [ ] Annually [ ] Other

[X] **Request Alternative Reporting Schedule:**

[ ] Semi-Annually [ ] Annually [X] Other Final Report

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

[X] Other NFA Status 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 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: $ 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 22,828 bbls of impacted water and 140 CY of impacted soil were transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 15,620 CY of impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 18280

E&P waste (solid) description Impacted Soil

ECMC Disposal Facility ID #, if applicable: 149007

Non-ECMC Disposal Facility: Front Range Landfill in Erie, CO (20 CY); Buffalo Ridge Landfill in Keenesburg, CO (2,500 CY)

Volume of E&P Waste (liquid) in barrels 22828

E&P waste (liquid) description Impacted Water

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? Yes

If YES:

[X] 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? Yes

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. 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. 05/05/2025

Proposed date of completion of Reclamation. 06/05/2025

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. 08/25/2021

Actual Spill or Release date, or date of discovery. 06/28/2021

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/28/2021

Proposed site investigation commencement. 06/28/2021

Proposed completion of site investigation. 09/05/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/28/2021

Proposed date of completion of Remediation. 03/05/2024

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

The Form 42 Document No. associated with this facility is 403906591.

Based on the analytical data provided herein, assessment and remediation are complete 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: Phil Hamlin Title: Senior Environmental Rep.

Submit Date: 09/11/2024 Email: Phillip_Hamlin@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: Date:

Remediation Project Number: 20436

COA Type	Description
0 COA	

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
403813984	FORM 27 DENIED
403826108	SITE MAP
403826111	SITE MAP
403826112	SOIL SAMPLE LOCATION MAP
403827762	GROUND WATER ELEVATION MAP
403827763	GROUND WATER ELEVATION MAP
403827764	GROUND WATER ELEVATION MAP
403827765	GROUND WATER ELEVATION MAP
403827867	ANALYTICAL RESULTS
404092132	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 10 Files

General Comments

User Group	Comment	Comment Date
Environmental	ECMC has denied this Form 27 for data validation. Operator will provide laboratory analytical report(s) as a stand-alone attachment(s) on the replacement Supplemental Form 27. The Laboratory Report PDF(s) must be secured by the issuing laboratory; If there is a difference between the creation date and secured date of the PDF, Operator shall provide an explanation in the case narrative of the associated report. ECMC will not review combined PDFs with lab reports.	08/15/2024

Total: 1 comment(s)