FORM 27 Rev 5/22

State of Colorado
Energy & Carbon Management Commission

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Report taken by:

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

Phone Numbers

Address: P O BOX 173779
Phone: (720) 929-4306
City: DENVER State: CO Zip: 80217-3779
Mobile: ( )
Contact Person: Erik Mickelson
Email: DJRemediation_Forms@oxy.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 32965 Initial Form 27 Document #: 403596886

PURPOSE INFORMATION

- [ ] Rule 913.c.(1): Pit or Cuttings Trench closure.
- [X] 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.
- [X] 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: 446172 API #: County Name: WELD
Facility Name: GNB W 31-3,4,5J-6 O SA 36159169 Latitude: 40.098289 Longitude: -104.826068
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SWNW Sec: 31 Twp: 2N Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 486351 API #: County Name: WELD
Facility Name: GNB W 31-3,4,5J,6 Facility Latitude: 40.098390 Longitude: -104.826120
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SWNW Sec: 31 Twp: 2N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications: SM

Most Sensitive Adjacent Land Use: Surface Water

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

Retention pond 980 feet (ft) north, 1,020 northeast, and 1,240 ft northwest. Irrigation ditch 930 ft southeast. South Platte River 1,080 ft southeast. Water well 710 ft northwest. This site is located within a Mule Deer Migration Corridor High Priority Habitat (HPH). This site is located within 1/4-mile of a Mule Deer Severe Winter Range HPH.

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	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.

Decommissioning activities were completed at the GNB W 31-3,4,5J,6 Facility & associated sales line & flowline between 2/27 & 4/11/2024. At the facility, visual inspection & field screening of soil at one aboveground storage tank (AST), one produced water vessel (PWV), one pothole location, & one separator were conducted following removal activities, & soil samples (AST01@0.5', PWV-B01@5', PWV-S01@3', FL01@5', SEP01-INLET@4', & SEP01-OUTLET@4') were submitted for analysis of full list Table 915-1 constituents to determine if a release occurred. Visual inspection and field screening of soils around the flowline & sales line were conducted following removal, & soil samples were collected from the locations where the flowline & sales line risers were disconnected from the separator (FL02@5' & FL03@5'), where the flowline & sales line turned at sharp angles (FL04@4', FL05@4', & FL10@3'), from where groundwater was present in the flowline & sales line potholes (FL06@5', FL07@4', FL08@3', & FL09@2'), & where the flowline & sales lines were previously cut & capped (FL11@3'). Initial lab analytical results indicated that total petroleum hydrocarbons (TPH), benzene, naphthalene, fluorene, 1-& 2-methylnaphthalene, sodium adsorption ratio (SAR), pH, boron, cadmium, hexavalent chromium, lead, &/or selenium impacts exceeding the ECMC Table 915-1 allowable levels & site-specific background levels were present at the AST, PWV, FL01, FL04, FL06, FL07, & FL09 locations. Verification samples were collected to confirm the initial results. Final results confirmed that impacts were present at the AST, PWV, and FL01 locations. As such, a Form 19 Spill Report (Doc# 403702300) was submitted on 3/7/2024, & the ECMC issued Spill ID 486351. The PID readings & soil sample results are summarized in Tables 1 & 2. The facility soil sample locations & associated sales line & flowline are depicted on Figures 1 & 2. The Form 44 is attached.

Assessment activities are ongoing.

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 2/27 & 4/17/2023, excavation activities were conducted to address the soil impacts at the AST, PWV & FL01 locations. Confirmation soil samples were collected from the base & sidewalls of the excavation at depths ranging from 3 to 6 ft bgs. The samples were submitted for analysis of the site-specific waste profile, including TPH, benzene, toluene, ethylbenzene, xylenes (BTEX), 1,2,4- and 1,3,5-trimethylbenzenes (TMBs), polycyclic aromatic hydrocarbons (PAHs), SAR, pH, boron, &/or select Table 915-1 metals, using ECMC-approved methods. Initial results indicated pH, barium, lead, &/or selenium impacts above the ECMC Table 915-1 allowable levels & site-specific background levels, remain in the combined AST, PWV, & FL01 excavation. Verification samples were collected to confirm the initial results and final results indicated that soil was within ECMC Table 915-1 allowable levels or within background levels at the final extents of the excavation. The laboratory reports are attached.

Proposed Groundwater Sampling

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

Between March 27 & April 11, 2024, seven groundwater samples (GW01, GW02, FL04-GW, FL05-GW, FL06-GW, FL08-GW, & FL09-GW) were collected from the combined AST, PWV, & pothole excavation, and the flowline & sales line potholes. Samples were submitted for laboratory analysis of full list Table 915-1 constituents in groundwater. Two background groundwater samples (BG02-GW & BG03-GW) were collected & submitted for total dissolved solids (TDS), chloride ion, & sulfate ion parameters. Results indicate that sulfate impacts exceeding the Table 915-1 allowable levels are present in groundwater at the GW02 & FL04 locations. The groundwater sample locations are depicted on Figures 1 & 2. The background groundwater samples are depicted on Figure 3. The groundwater sample analytical results are summarized in Table 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):

Between February 27 and April 11, 2024, visual inspections and field screening of soil were conducted at the hatch and loadout of the AST, three sidewalls of the PWV excavation, the dumpline for the PWV, and six flowline & sales line potholes. Based on the inspection and screening results, hydrocarbon-impacted soils were not observed at the soil screening locations. As a result, no soil samples were submitted for laboratory analysis from these areas in accordance with the ECMC Operator Guidance for Oil & Gas Facility Closure document. The soil sample locations are depicted on Figures 1 & 2. A photographic log is attached.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected	56	--	Highest concentration of TPH (mg/kg) 6270
Number of soil samples exceeeding 915-1	48	--	Highest concentration of SAR 30.8
Was the areal and vertical extent of soil contamination delineated?	Yes		BTEX > 915-1 Yes
Approximate areal extent (square feet)	8687		Vertical Extent > 915-1 (in feet) 6

NA / ND

Groundwater

Number of groundwater samples collected	7	--	Highest concentration of Benzene (µg/l) 1.14
Was extent of groundwater contaminated delineated?	No	--	Highest concentration of Toluene (µg/l) 25.7
Depth to groundwater (below ground surface, in feet)	2	--	Highest concentration of Ethylbenzene (µg/l) 2.07
Number of groundwater monitoring wells installed	0	--	Highest concentration of Xylene (µg/l) 30.6
Number of groundwater samples exceeding 915-1	2	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?

One tank battery background soil sample (TB-BG01@0.5') was collected from the soil used to construct the tank battery for comparison to shallow soil samples collected within the fill material. Six native background soil samples (NATIVE-BG01@3' - NATIVE-BG03@3' & NATIVE-BG01@6' - NATIVEBG03@6') were collected from native material adjacent to the facility excavation. Twelve background soil samples were collected during the GNB W 31-3 cut & cap activities (Rem# 32961), located in the same quarter section & NRCS soil type as the facility. The background samples were submitted for lab analysis of pH, electrical conductivity(EC), SAR, boron, & Table 915-1 metals. Results indicate that arsenic & barium are naturally high in the soil used to construct the tank battery & pH, SAR, boron, arsenic, barium, cadmium, lead, & selenium are naturally high in the native soil. The background soil sample analytical results are summarized in Table 2 & background soil samples are depicted on Figures 1 & 3.

☐ 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 to delineate the dissolved-phase plume. The groundwater monitoring well installation scope of work will be submitted in a subsequent Form 27 Supplemental report.

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 7,100 bbls of impacted groundwater were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 9 cubic yards of hydro-excavation soil slurry were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 4,760 cubic yards of impacted soil were removed from the site and transported to the Front Range Landfill in Erie, Colorado for disposal. Disposal records are kept on file and are available upon request. The excavation areas were backfilled and contoured to match pre-existing 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 data indicate that impacts in the locations of the former AST, PWV, and sales line pothole FL01 have been remediated to be within the ECMC Table 915-1 allowable levels or site-specific background levels. Groundwater was encountered in the facility excavation and in the flowline & sales line potholes at depths ranging from 2 to 4 ft bgs. Seven groundwater samples (GW01, GW02, FL04-GW, FL05-GW, FL06-GW, FL08-GW, & FL09-GW) were submitted for laboratory analysis of full Table 915-1 constituents in groundwater. Results indicate that sulfate impacts exceeding the Table 915-1 allowable levels are present in groundwater at the GW02 & FL04 locations.

Groundwater monitoring wells will be installed to delineate the dissolved-phase plume. The groundwater monitoring well installation scope of work will be submitted in a subsequent Form 27 Supplemental report.

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) 4769
  - Name of Licensed Disposal Facility or ECMC Facility ID # 434766
- ☐ 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 will be installed to delineate the dissolved-phase plume. The groundwater monitoring well installation scope of work will be submitted in a subsequent Form 27 Supplemental report.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

[X] 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 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: $ 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 7,100 bbls of impacted groundwater were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 9 cubic yards of hydro-excavation soil slurry were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 4769

E&P waste (solid) description Impacted Soil

ECMC Disposal Facility ID #, if applicable: 434766

Non-ECMC Disposal Facility: Front Range Landfill in Erie, CO (4760)

Volume of E&P Waste (liquid) in barrels 7100

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.

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. 03/07/2024

Actual Spill or Release date, or date of discovery. 03/07/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/27/2024

Proposed site investigation commencement. 02/27/2024

Proposed completion of site investigation. 02/26/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/27/2024

Proposed date of completion of Remediation. 02/26/2026

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: Erik Mickelson Title: Environmental Lead

Submit Date: 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: Date:

Remediation Project Number: 32965

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
403899933	CORRESPONDENCE
403899934	ANALYTICAL RESULTS
403899936	PHOTO DOCUMENTATION
403899937	SOIL SAMPLE LOCATION MAP
403899939	SOIL SAMPLE LOCATION MAP
403899940	SOIL SAMPLE LOCATION MAP

Total Attach: 6 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)