

State of Colorado  
Energy & Carbon Management 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 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: <u>KERR MCGEE OIL &amp; GAS ONSHORE LP</u>	Operator No: <u>47120</u>	Phone Numbers Phone: <u>(720) 929-4306</u> Mobile: <u>( )</u>
Address: <u>P O BOX 173779</u>		
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80217-3779</u>
Contact Person: <u>Erik Mickelson</u>	Email: <u>DJRemediation_Forms@oxy.com</u>	

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.
- 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: <u>LOCATION</u>	Facility ID: <u>446172</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>GNB W 31-3,4,5J-6 O SA 36159169</u>	Latitude: <u>40.098289</u>	Longitude: <u>-104.826068</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWNW</u>	Sec: <u>31</u>	Twp: <u>2N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

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

## 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. Groundwater was encountered at 2 ft below ground surface (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	TBD	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 ECOM 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 are present at the AST, PWV, FL01, FL06, & FL09 locations. As such, a Form 19 Spill Report (Doc# 403702300) was submitted on 3/7/2024, & the ECOM 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

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, & pothole locations. Confirmation soil samples were collected from the base & sidewalls of the excavations at depths ranging from 3 to 6 ft bgs. The confirmation soil samples were submitted for lab analysis of the site-specific waste profile including TPH, benzene, toluene, ethylbenzene, xylenes (BTEX), 1,2,4- & 1,3,5-trimethylbenzenes (TMBs), polycyclic aromatic hydrocarbons (PAHs), SAR, pH, boron, &/or select Table 915-1 metals, using ECOM-approved methods. Analytical results indicate pH, barium, lead, &/or selenium impacts above the ECOM Table 915-1 allowable levels & site-specific background levels, remain in the combined AST, PWV, & pothole excavation. Verification sample results indicated that hexavalent chromium & selenium impacts remain at the FL06 & FL09 locations. Assessment activities are ongoing. The lab 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 ECOM 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	NA / ND
Number of soil samples collected <u>51</u>	-- Highest concentration of TPH (mg/kg) <u>6270</u>
Number of soil samples exceeding 915-1 <u>46</u>	-- Highest concentration of SAR <u>30.8</u>
Was the areal and vertical extent of soil contamination delineated? <u>No</u>	BTEX > 915-1 <u>Yes</u>
Approximate areal extent (square feet) <u>8687</u>	Vertical Extent > 915-1 (in feet) <u>6</u>
<b>Groundwater</b>	
Number of groundwater samples collected <u>7</u>	-- Highest concentration of Benzene (µg/l) <u>1.14</u>
Was extent of groundwater contaminated delineated? <u>No</u>	-- Highest concentration of Toluene (µg/l) <u>25.7</u>
Depth to groundwater (below ground surface, in feet) <u>2</u>	-- Highest concentration of Ethylbenzene (µg/l) <u>2.07</u>
Number of groundwater monitoring wells installed <u>0</u>	-- Highest concentration of Xylene (µg/l) <u>30.6</u>
Number of groundwater samples exceeding 915-1 <u>2</u>	NA Highest concentration of Methane (mg/l) <u></u>
<b>Surface Water</b>	
<u>0</u> Number of surface water samples collected	
<u></u> 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' - NATIVE-BG03@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?

## 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.

Impacted soil has been transported to a licensed disposal facility. Final disposal quantities will be provided once excavation activities are confirmed to be complete. Disposal records will be kept on file and available upon request. The excavation area will be backfilled and contoured to match pre-existing conditions.

### REMEDICATION 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 pH, barium, lead, hexavalent chromium, &/or selenium impacts above the ECMC Table 915-1 allowable levels & site-specific background levels, remain in the combined AST, PWV, & pothole excavation and the flowline and sales line pothole locations. Assessment activities are still ongoing. 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. Assessment activities are ongoing and will be summarized in a subsequent Form 27 Supplemental.

### Soil Remediation Summary

In Situ

Ex Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

\_\_\_\_\_ Excavate and offsite disposal

\_\_\_\_\_ Chemical oxidation

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_

\_\_\_\_\_ Air sparge / Soil vapor extraction

\_\_\_\_\_ Name of Licensed Disposal Facility or ECMC Facility ID # \_\_\_\_\_

\_\_\_\_\_ Natural Attenuation

\_\_\_\_\_ Excavate and onsite remediation

\_\_\_\_\_ Other \_\_\_\_\_

\_\_\_\_\_ 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 scope of work will be provided in a subsequent Form 27 Supplemental report.



Does Groundwater meet Table 915-1 standards? \_\_\_\_\_

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.

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. 05/29/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/07/2024

Proposed date of completion of Remediation. 05/29/2025

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**

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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: 06/07/2024

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: Laurel Anderson

Date: 09/19/2024

Remediation Project Number: 32965

**COA Type****Description**

	Background sample NATIVE-BG01 do not appear to be representative of background conditions near the production facility and release. These samples shall be omitted from the site specific background determination calculations. Operator shall obtain samples from locations sufficiently away from the impacted area to reflect conditions not impacted by oil and gas activity, from similar depths and soil horizons or lithologic materials for comparison to confirmation soil samples.
1 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**

403805406	FORM 27-SUPPLEMENTAL-SUBMITTED
403805466	SOIL SAMPLE LOCATION MAP
403805471	SOIL SAMPLE LOCATION MAP
403805477	PHOTO DOCUMENTATION
403805488	ANALYTICAL RESULTS
403805490	CORRESPONDENCE
403808045	SOIL SAMPLE LOCATION MAP

Total Attach: 7 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)