

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 INFORMATION

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 #: 30862 Initial Form 27 Document #: 403460023

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: LOCATION Facility ID: 445558 API #: County Name: WELD
Facility Name: SHARKEY8&9-35&10-3 O SA Latitude: 40.264899 Longitude: -104.854555
34001942
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SESE Sec: 35 Twp: 4N Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 485884 API #: _____ County Name: WELD
 Facility Name: Sharkey 8 & 9-35 & 10-3 O SA Latitude: 40.264899 Longitude: -104.854555
 ** correct Lat/Long if needed: Latitude: _____ Longitude: _____
 QtrQtr: SESE Sec: 35 Twp: 4N Range: 67W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SP 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

Surface water 530 feet (ft) west and Western Mutual Ditch 1,020 ft east. Water well 690 ft southwest. County road 220 ft north. Commercial building 870 ft northeast. Residential buildings 1160 ft east. Groundwater at approximately 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 Sharkey8&9-35 & 10-3 O SA Facility on December 28 and December 29, 2023. Groundwater was encountered during excavation activities at depths ranging from 2 to 3 ft bgs. Visual inspection and field screening of soil at three aboveground storage tanks (ASTs), two produced water vessel (PWVs), one emission control device (ECD), one meter house, two separators, and dumphines were conducted removal activities, and soil samples (AST01@2', AST02@1', AST03@1.5', PWV01-E01@2.5', PWV01-B01@6', PWV02-E01@2.5', PWV02-B01@6', SEP01-INLET@4', SEP01-OUTLET@4', SEP02-INLET@4', SEP02-OUTLET@4', FL01@4', and FL02@4') were submitted for analysis of full list Table 915-1 constituents including benzene, toluene, ethylbenzene, xylenes (BTEX), 1,2,4- and 1,3,5-trimethylbenzenes (TMBs), naphthalene, total petroleum hydrocarbons (TPH)-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO), Table 915-1 polycyclic aromatic hydrocarbons (PAHs), pH, electrical conductivity (EC), sodium adsorption ratio (SAR), boron, and Table 915-1 metals to determine if a release occurred. Laboratory analytical results indicated that TPH, benzene, TMBs, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, SAR, arsenic, barium, and/or lead impacts exceeding the ECOMC Table 915-1 allowable levels and/or site-specific background levels were present at the AST01, AST02, PWV01, PWV02, SEP01, SEP02, FL01, and FL02 locations. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403640310) was submitted on December 29, 2023 and the ECOMC issued Spill/Release ID 485884. The facility soil sample locations are depicted on Figure 1. The PID readings and soil sample results are summarized in Tables 1 and 2, respectively.

Excavation activities are ongoing and will be summarized in a subsequent Form 27 Supplemental report.

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):

On December 28 and December 29, 2023, confirmation soil samples (AST01@2', AST02@1', AST03@1.5', PWV01-E01@2.5', PWV01-B01@6', PWV02-E01@2.5', PWV02-B01@6', SEP01-INLET@4', SEP01-OUTLET@4', SEP02-INLET@4', SEP02-OUTLET@4', FL01@4', and FL02@4') were collected from the facility excavations. Laboratory analytical results indicated that TPH, benzene, TMBs, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, SAR, arsenic, barium, and/or lead impacts exceeding the ECOM Table 915-1 allowable levels and/or site-specific background levels were present at the AST01, AST02, PWV01, PWV02, SEP01, SEP02, FL01, and FL02 locations. Excavation activities are ongoing. The PID readings and soil sample results are summarized in Table 1 and Table 2, respectively, and the laboratory reports are attached.

Proposed Groundwater Sampling

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

Five groundwater samples (PWV-GW01, SEP01-GW01, SEP02-GW01, FL01-GW01, and FL02-GW01) were collected from the PWV, SEP01, SEP02, FL01, and FL02 excavations. The groundwater samples were submitted for laboratory analysis of full list Table 915-1 constituents for groundwater. Two background groundwater samples (GW-BG01 and GW-BG02) were also collected and submitted for laboratory analysis of Table 915-1 inorganic constituents for groundwater. Laboratory analytical results indicate that benzene and/or TMBs impacts exceeding the Table 915-1 allowable levels are present in groundwater at the PWV, SEP02, FL01, and FL02 excavations.

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):

On December 28, 2023, visual inspections and field screening of soils was conducted at the base and loadout for each AST, two sidewalls of each PWV excavation, the meter house, and the ECD. 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. A photographic log is attached.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil	NA / ND
Number of soil samples collected <u>13</u>	-- Highest concentration of TPH (mg/kg) <u>1100</u>
Number of soil samples exceeding 915-1 <u>13</u>	-- Highest concentration of SAR <u>6.41</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>3170</u>	Vertical Extent > 915-1 (in feet) <u>4</u>
Groundwater	
Number of groundwater samples collected <u>5</u>	-- Highest concentration of Benzene (µg/l) <u>93.9</u>
Was extent of groundwater contaminated delineated? <u>Yes</u>	-- Highest concentration of Toluene (µg/l) <u>60.2</u>
Depth to groundwater (below ground surface, in feet) <u>2</u>	-- Highest concentration of Ethylbenzene (µg/l) <u>24.3</u>
Number of groundwater monitoring wells installed <u>0</u>	-- Highest concentration of Xylene (µg/l) <u>270</u>
Number of groundwater samples exceeding 915-1 <u>4</u>	NA Highest concentration of Methane (mg/l) <u></u>
Surface Water	
<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. Four native background soil samples were collected from the native material outside of the facility excavations. The background soil samples were submitted for analysis of pH, EC, SAR, boron, and Table 915-1 metals using ECMC-approved methods. Analytical results indicate that arsenic and barium are naturally high in the soil used to construct the tank battery and pH, arsenic, barium, and selenium are naturally high in the native soil. The background soil sample laboratory analytical results are summarized in Table 2.

Two background groundwater samples were collected for analysis of Table 915-1 inorganic constituents for groundwater. Analytical results indicate that levels of sulfate ion are naturally high in the groundwater. Background groundwater analytical results are summarized in Table 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?

Excavation activities are ongoing and will be summarized in a subsequent Form 27 Supplemental report.

Following completion of excavation activities, 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.

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 will be removed and transported to a licensed disposal facility. Final disposal information will be provided upon completion of excavation activities. Disposal records will be kept on file and available upon request. The excavation areas 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 impacts exceeding the ECMC Table 915-1 allowable level and background levels for TPH, benzene, TMBs, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, SAR, arsenic, barium, and/or lead are present at the AST01, AST02, PWV01, PWV02, SEP01, SEP02, FL01, and FL02 locations. Excavation activities are ongoing. Groundwater was encountered in the facility excavations at depths ranging from 2 to 3 ft bgs. Groundwater analytical results indicate that benzene and/or TMBs impacts exceeding the Table 915-1 allowable levels are present in groundwater at the PWV, SEP02, FL01, and FL02 excavations. Confirmation soil sample results will be summarized in a subsequent Form 27 Supplemental report within 90 days following the completion of excavation activities.

Following completion of excavation activities, 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.

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.

Following completion of excavation activities, 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.

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 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: \$ 50000 _____

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? _____

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

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

E&P waste (solid) description _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

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

E&P waste (liquid) description _____

ECMC Disposal Facility ID #, if applicable: _____

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? _____

Does the previous reply indicate consideration of background concentrations? _____

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. 12/29/2023

Actual Spill or Release date, or date of discovery. 12/29/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/28/2023

Proposed site investigation commencement. 12/28/2023

Proposed completion of site investigation. 10/22/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/28/2023

Proposed date of completion of Remediation. 10/22/2025

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

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: 30862

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

403763180	SOIL SAMPLE LOCATION MAP
403763181	ANALYTICAL RESULTS
403763182	PHOTO DOCUMENTATION

Total Attach: 3 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)