

State of Colorado
Energy & Carbon Management Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



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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 #: 28970 Initial Form 27 Document #: 403361810

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: TANK BATTERY Facility ID: 444612 API #: _____ County Name: WELD

Facility Name: Vogl NWNW Section 5 2N 67W Battery Latitude: 40.173900 Longitude: -104.922130

** correct Lat/Long if needed: Latitude: _____ Longitude: _____

QtrQtr: NWNW Sec: 5 Twp: 2N Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 485391 API #: _____ County Name: WELD

Facility Name: Vogl3&4&5-5 McHale M O SA Facility Latitude: 40.174182 Longitude: -104.922475

** correct Lat/Long if needed: Latitude: _____ Longitude: _____

QtrQtr: NWNW Sec: 5 Twp: 2N Range: 67W 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

Surface water 460 feet (ft) north and 1,140 ft south. Water well 530 ft northeast, Livestock 500 ft west and 670 ft east. Occupied buildings 620 ft northeast and 870 ft northwest. County Road 480 ft north. Agriculture surrounding. Groundwater 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
No	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.

Decommissioning activities were completed at the Vogl 3&4&5-5 McHale M O SA Facility on October 24 and October 25, 2023. Groundwater was encountered in the facility excavation at approximately 2 ft bgs. Visual inspection and field screening of soil at three aboveground storage tanks (ASTs), one produced water vessel (PWV), one emission control device (ECD), one meter house, and three separators were conducted following removal activities, and soil samples (AST01@0.5', AST02@0.5', AST03@0.5', PWV-B01@2', PWV-E01@2', PWV-B02@3', SEP02-INLET@3', SEP02-OUTLET@3', SEP03-INLET@3', and SEP03-OUTLET@3') were submitted for analysis of reduced 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), pH, electrical conductivity (EC), sodium adsorption ratio (SAR), and boron, as approved in the Form 27 Initial dated April 4, 2023 (Document No. 403361810), to determine if a release occurred. Samples SEP01-INLET@3' and SEP01-OUTLET@3' were submitted for analysis of full list Table 915-1 constituents due to the presence of impacts. Laboratory analytical results indicated that benzene impacts exceeding the ECMC Table 915-1 allowable level were present at the SEP01-OUTLET@3' location. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403575079) was submitted on October 30, 2023, and the ECMC issued Spill/Release Point ID 485391. 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.

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 October 25, 2023 and February 14, 2024, excavation activities were conducted to address remaining soil impacts at the former SEP03 outlet location and five confirmation soil samples were collected from the base and sidewalls of the final extents of the excavations at depths of 5 ft bgs and 3 ft bgs, respectively. The confirmation soil samples were submitted for laboratory analysis of the site-specific waste profile including BTEX, arsenic, and barium using ECMC-approved methods. Analytical results indicated that constituent concentrations in the soil samples collected from the final excavation extent were in compliance with the ECMC Table 915-1 standards and/or within range of site-specific background levels. 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):

One groundwater sample (GW01) was collected from the PWV excavation and submitted for laboratory analysis of Table 915-1 organic constituents. Laboratory analytical results indicate that groundwater is within the ECMC Table 915-1 allowable levels for organic compounds. The groundwater analytical results are summarized in Table 3. The excavation groundwater sample is depicted on Figure 1.

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 October 24, 2023, visual inspections and field screening of soils was conducted at the dumpline and footprint for each AST, three sidewalls of the 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 ECMC Operator Guidance for Oil & Gas Facility Closure document. A photographic log is attached.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 12

Number of soil samples exceeding 915-1 4

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

Approximate areal extent (square feet) 450

NA / ND

-- Highest concentration of TPH (mg/kg) 30.1

-- Highest concentration of SAR 3

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 5

Groundwater

Number of groundwater samples collected 1

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 2

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

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 background soil sample (TB-BG01@0.5') was collected from the material used to construct the tank battery for comparison to shallow soil samples collected within the fill. Six native background soil samples (Native-BG03@3' through Native-BG06@3' and Native-BG03@6' through Native-BG06@6') were collected from the native material outside of the facility excavations. Six native background soil samples (NATIVE-BG01@3' through NATIVE-BG03@3' and NATIVE-BG01@6' through NATIVE-BG03@6') were collected as part of the Vogl 5-5 wellhead decommissioning activities (Remediation No. 28996). Background soil samples were submitted for analysis of pH, EC, SAR, boron, and/or Table 915-1 metals using ECMC-approved methods. Results indicate that pH is naturally high in the soil used to construct the tank battery and SAR and arsenic are naturally high in the native soil. The background sample analytical results are summarized in Table 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 240 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.

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 impacted soil in the excavation area has been removed and all remaining soil at the extent of the excavations is in compliance with the ECMC Table 915-1 standards and/or within range of site-specific background levels. Groundwater was encountered in the PWV excavation at approximately 2 ft bgs. Laboratory analytical results indicate that groundwater is in full compliance with ECMC Table 915-1 allowable levels for organic constituents. Based on the analytical and soil screening data presented herein, assessment is complete at this site and no further activities are required. As such, KMOG is requesting a No Further Action (NFA) determination for this location.

Soil Remediation Summary

In Situ

Ex Situ

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

- Yes _____ Excavate and offsite disposal
- _____ If Yes: Estimated Volume (Cubic Yards) _____ 240
- _____ 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

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: \$

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:

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? Yes

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?

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 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. 06/01/2024

Proposed date of completion of Reclamation. 07/01/2024

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. 10/27/2023

Actual Spill or Release date, or date of discovery. 10/27/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/24/2023

Proposed site investigation commencement. 10/24/2023

Proposed completion of site investigation. 02/14/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 10/24/2023

Proposed date of completion of Remediation. 02/14/2024

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

Based on analytical and soil screening data provided herein, assessment is 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: 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: 28970

COA Type**Description**

COA Type	Description
0 COA	

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**

403613679	PHOTO DOCUMENTATION
403708466	ANALYTICAL RESULTS
403738183	SOIL SAMPLE LOCATION MAP
403738184	SOIL SAMPLE LOCATION MAP

Total Attach: 4 Files

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

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)