

State of Colorado Energy & Carbon Management Commission

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 25666 Initial Form 27 Document #: 403201573

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

No Multiple Facilities

Facility Type: WELL	Facility ID: _____	API #: 123-21554	County Name: WELD
Facility Name: VOGL 4-5A	Latitude: 40.173690	Longitude: -104.921540	
** 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 SW

Most Sensitive Adjacent Land Use Agriculture

Is domestic water well within 1/4 mile? Yes

Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

Occupied buildings approximately 650 feet (ft) southwest, 750 ft northwest, and 900 ft northeast; Wetlands approximately 800 ft north; Water well approximately 800 ft northwest; Agriculture surrounding.

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) Thermogenic gas

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	To be determined	Analytical results of soil vapor samples

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

This form has been prepared to summarize ongoing assessment activities conducted during the plugging and abandonment of the Vogl 4-5A wellhead and the removal of the associated flowline, as proposed in the Form 27 Supplemental dated April 6, 2023 (Document No. 403367086). Assessment activities have not yet commenced at the site.

The flowline will be permanently removed. The off-location flowline system pre-removal notice was submitted under Form 44 Document No. 403344269. In accordance with ECMC Rule 911.a., soil and groundwater (if present) samples will be collected and submitted for laboratory analysis to determine if concentrations and values are in compliance with ECMC Table 915-1. Visual inspection and field screening of soils around the wellhead and associated flowline will be conducted during sampling activities. Soil vapor screening will also be performed around the wellhead. The Form 44 is attached.

During routine testing activities at the Vogl 4-5A wellhead, five shallow soil vapor points (SVPs) were installed in the vicinity of the wellhead. Samples were collected on July 13, 2022 and submitted to Isotech Laboratories for gas composition (GC) analysis. Sample results and analysis were received on August 3, 2022 and indicated the presence of a trace concentration of thermogenic gas. The presence of stray gas was reported in a Form 19 Initial dated August 3, 2022 (Document No. 403125749). Please refer to the Form 27 Supplemental dated January 30, 2023 (Document No. 403303056) for more details.

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):

Following wellhead cut and cap operations, soil will be field screened at the wellhead, separator riser, and associated flowline. Samples will be collected if indications of impacts to soil or groundwater are present. If impacted soils are encountered, a waste characterization soil sample will be collected from the area exhibiting the highest degree of impact based on visual, olfactory, and/or field screening observations. In the absence of apparent impacts, a soil sample will be collected from the base of the excavation adjacent to the wellhead, adjacent to the wellhead riser, adjacent to the separator riser, and the areas most likely to have been impacted during the operational life of the flowline. Soil samples will be submitted to an accredited laboratory for analysis using standard methods appropriate for detecting the target analytes in ECMC Table 915-1. Please refer to the Form 27 Supplemental dated April 6, 2023 (Document No. 403367086) for more details.

Proposed Groundwater Sampling

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

If groundwater is encountered during facility decommissioning activities, a minimum of one grab sample will be collected as soon as practical. Groundwater samples will be submitted to an accredited laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB, using standard methods appropriate for detecting the target analytes in ECMC Table 915-1.

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):

If no impacts are observed, a minimum of one soil sample from the wellhead, separator and wellhead riser excavations will be submitted for laboratory analysis of BTEX, TMBs, naphthalene, and total petroleum hydrocarbons (TPH) - gasoline range organics (GRO: C6-C10) by United States Environmental Protection Agency (USEPA) Method 8260D, TPH - diesel range organics (DRO: C10-C28) and oil range organics (ORO: C28-C40) by USEPA Method 8015D, pH, specific conductance (EC) and sodium adsorption ratio (SAR) by saturated paste method, and boron by hot water soluble soil extract method. If impacts are encountered, a minimum of one soil sample will be submitted for laboratory analysis of the full ECMC Table 915-1 analytical suite.

The soil vapor investigation is ongoing. Following cut and cap operations, a soil gas survey will be conducted. Five replacement SVPs will be installed adjacent to the former wellhead location.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 0

Number of soil samples exceeding 915-1

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet)

NA / ND

Highest concentration of TPH (mg/kg)

Highest concentration of SAR

BTEX > 915-1

Vertical Extent > 915-1 (in feet)

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet)

Number of groundwater monitoring wells installed

Number of groundwater samples exceeding 915-1

Highest concentration of Benzene (µg/l)

Highest concentration of Toluene (µg/l)

Highest concentration of Ethylbenzene (µg/l)

Highest concentration of Xylene (µg/l)

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?

☐ 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?

Assessment activities associated with the plugging and abandonment of the Vogl 4-5A wellhead and the removal of the associated flowline have not yet commenced at the site. Assessment details will be provided in a supplemental report.

The soil vapor investigation is ongoing. Following cut and cap operations, a soil gas survey will be conducted. Five replacement SVPs will be installed adjacent to the former wellhead location. Please refer to the Form 27 Supplemental dated April 6, 2023 (Document No. 403367086) for more details.

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.

If a suspected release is identified and confirmed through soil screening and/or laboratory analysis, soils will be removed and transported to a licensed disposal facility. Disposal records will be kept on file and available upon request.

An investigation into the source of the stray gas is ongoing.

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.

Potential impacts that meet the criteria in Rule 912.b. will be reported to the Director in accordance with that Rule and a site-specific soil and/or groundwater remediation plan will be developed and submitted to the ECMC via a supplemental Form 27 in accordance with Rule 913. If reportable impacts are not encountered, a supplemental Form 27 requesting closure will be submitted within 90 days following completion of sampling activities. Field screening and applicable laboratory analytical results will be reported in all submittals. E&P waste records of material transported off-site are kept on file and available upon request.

The soil vapor investigation is ongoing. Following cut and cap operations, a soil gas survey will be conducted. Five replacement SVPs will be installed adjacent to the former wellhead location. Please refer to the Form 27 Supplemental dated April 6, 2023 (Document No. 403367086) for more details.

Soil Remediation Summary

☐ **In Situ**

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☐ **Ex Situ**

_____ Excavate and offsite disposal

_____ If Yes: Estimated Volume (Cubic Yards) _____

_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____

_____ 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 of guarantees as to the accuracy of the preliminary estimate.

Operator anticipates the remaining cost for this project to be: \$ 30000

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

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC 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 COGCC 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 the 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. 08/03/2022

Actual Spill or Release date, or date of discovery. 08/03/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/03/2022

Proposed site investigation commencement. 08/03/2022

Proposed completion of site investigation. 12/31/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 01/01/2024

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

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

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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: _____

Email: Erik_Mickelson@oxy.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: _____

Date: _____

Remediation Project Number: 25666

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**

403532765	CORRESPONDENCE
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Total Attach: 1 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)