

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: (970) 515-1698 Mobile: ()
Address: P O BOX 173779		
City: DENVER	State: CO Zip: 80217-3779	
Contact Person: Gregory Hamilton	Email: Gregory_Hamilton@oxy.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 26621 Initial Form 27 Document #: 403256848

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: LOCATION	Facility ID: 327690	API #: _____	County Name: WELD
Facility Name: P C GAS UNIT-62N68W 26NESW		Latitude: 40.106787	Longitude: -104.974135
		** correct Lat/Long if needed: Latitude: 40.105996	Longitude: -104.974711
QtrQtr: NESW	Sec: 26	Twp: 2N	Range: 68W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications CL Most Sensitive Adjacent Land Use Surface Water and Occupied Building

Is domestic water well within 1/4 mile? No 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

Agriculture; Occupied building approximately 1,100 feet (ft) northwest; Surface water approximately 1,300 ft east; Groundwater approximately 8 ft below ground surface (ft 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	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 Pace Connelly Gas Unit #1-26 O SA Facility between March 2, 2023. Groundwater was encountered in the facility excavation at approximately 8 ft bgs. Visual inspection and field screening of soil at one aboveground storage tank (AST), one produced water vessel (PWV), one meter house, and one separator were conducted following removal activities, and soil samples (AST01@0.5'-WP, PWV-B01@6', PWV-E01@4'-WP, SEP01-INLET@4' and SEP01-OUTLET@4') were submitted for analysis of 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, BTEX, TMBs, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, arsenic and/or barium impacts exceeding the ECOMC Table 915-1 allowable levels and/or site-specific background levels were present at the separator outlet and PWV locations. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403336498) was submitted on March 6, 2023, and the ECOMC issued Spill/Release Point ID 483975. 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):

Between March 2 and August 8, 2023, excavation activities were conducted to address remaining soil impacts at the former facility. Confirmation soil samples were collected from the base and sidewalls of the combined excavation at depths of 12 ft bgs and 8 ft bgs, respectively. Laboratory analytical results arsenic and barium impacts exceeding the ECOMC Table 915-1 allowable levels and/or background levels at the extents of the excavations. Excavation activities are ongoing. The PID readings and soil sample results are summarized in Table 1 and Table 2, respectively, and the laboratory report is attached.

Proposed Groundwater Sampling

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

Groundwater was encountered in the facility excavation at approximately 8 ft bgs. On April 17, 2023, two groundwater samples (GW01 and GW02) were collected and submitted for Table 915-1 parameters. Analytical results indicate that both samples exceed the ECOMC allowable levels for benzene. A background groundwater sample for confirming inorganic compliance is pending.

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 July 26, 2023, a flowline associated with the facility was removed and two soil samples were collected from the locations where the flowline turned at a sharp angle (FL01@4') and where the flowline terminated (FL02@4'). The samples were submitted for laboratory analysis of reduced list Table 915-1 constituents, as approved in the Form 27 Initial dated December 12, 2022 (Document No. 403256848) to determine if a release occurred. Analytical results indicated the soil samples were within compliance of ECOMC allowable levels. The flowline samples are depicted on Figure 3.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 5

Number of soil samples exceeding 915-1 5

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

Approximate areal extent (square feet) 391

NA / ND

-- Highest concentration of TPH (mg/kg) 56.9

-- Highest concentration of SAR 2.16

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 6

Groundwater

Number of groundwater samples collected 2

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 8

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 2

-- Highest concentration of Benzene (µg/l) 30.8

ND Highest concentration of Toluene (µg/l)

-- Highest concentration of Ethylbenzene (µg/l) 166

-- Highest concentration of Xylene (µg/l) 358

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 tank battery material and submitted for laboratory analysis of pH, EC, SAR, boron, and metals. Laboratory analytical results indicate that pH and arsenic are naturally high in the soil used to construct the tank battery.

Eight native background soil samples were collected from the native material adjacent to the facility excavation (Native-BG01@6' through Native-BG04@6' and Native-BG01@12' through Native-BG04@12'). Eight native background soil samples were also collected as part of the PC Gas Unit 1-26 Wellhead closure activities (Remediation No. 26627). All background samples were submitted for laboratory analysis of pH, EC, SAR, boron, and metals using ECMC-approved methods. Laboratory analytical results indicate that EC, SAR, arsenic, barium, and selenium are naturally high in the native soil. Background soil sample locations are depicted on Figure 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?

Excavation activities are ongoing. Groundwater monitoring wells will be installed to delineate the plume once excavation activities are complete.

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.

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 exceeding the ECMC Table 915-1 allowable level and background levels for arsenic and barium remain in the facility excavation. Excavation activities are ongoing. Groundwater was encountered in the facility excavation at approximately 8 ft bgs. Groundwater analytical results indicate benzene concentrations exceeding the Table 915-1 allowable levels are present. Confirmation soil sample results will be summarized in a subsequent Form 27 Supplemental report within 90 days following the completion of excavation activities.

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.

Groundwater monitoring wells will be installed to delineate the plume once excavation activities are complete. The groundwater monitoring scope of work will be presented 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: \$ 13500

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 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. 03/03/2023

Actual Spill or Release date, or date of discovery. 03/03/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/02/2023

Proposed site investigation commencement. 03/02/2023

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/02/2023

Proposed date of completion of Remediation. _____

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: Gregory Hamilton

Title: Environmental Lead

Submit Date: _____

Email: Gregory_Hamilton@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: 26621

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**

403503813	PHOTO DOCUMENTATION
403504228	ANALYTICAL RESULTS
403504468	SOIL SAMPLE LOCATION MAP

Total Attach: 3 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)