

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

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 feet below ground surface (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 ECMC 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 ECMC 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.

Assessment 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 indicated that all soil samples collected at the extents of the excavation were within the ECMC Table 915-1 allowable levels except for arsenic, barium, and selenium which will be addressed during groundwater sampling. 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):

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 ECMC 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 ECMC 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?

Due to ongoing excavation activities, the tank battery background sample previously reported is no longer applicable. 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 pH and arsenic are naturally high in the soil used to construct the tank battery and EC, SAR, arsenic, barium, and selenium are naturally high in the native soil. Background soil sample analytical results are summarized in Table 2. Background sample locations are depicted on Figures 1 and 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?

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

Approximately 65,470 bbls of impacted water were transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 22,240 cubic yards of impacted soil were transported to the Front Range Landfill in Erie, Colorado for disposal. Disposal records are 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.

In order to determine the extent and magnitude of any dissolved-phase impacts, groundwater monitoring wells will be installed in the source areas, cross-gradient, and downgradient of the excavation footprints. The well installation scope of work will be provided in a subsequent Form 27 supplemental report.

Soil Remediation Summary

☐ In Situ

☒ Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) 22240

_____ Air sparge / Soil vapor extraction

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

_____ Natural Attenuation

No _____ 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 plume once excavation activities are confirmed to be complete. Groundwater samples will be collected from the monitoring wells on a quarterly basis and will be submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, total dissolved solids, chloride ion, and sulfate ion per ECMC Rule 912.a. Due to the metal exceedances in the proposed soil to be left in place (as discussed in the Proposed Soil Sampling section), the groundwater samples will also be analyzed for dissolved arsenic, barium, and selenium in accordance with the Water Quality Control Commission (WQCC) Regulation 41. Groundwater monitoring for metals will be conducted for four consecutive quarters and a request to remove metals from the analyte list will be submitted if all results come back below the WQCC allowable levels. The laboratory analytical and assessment results will be summarized in a supplemental Form 27.

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? Yes

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

Approximately 65,470 bbls of impacted water were transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 22240

E&P waste (solid) description Impacted soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Front Range Landfill in Erie, CO

Volume of E&P Waste (liquid) in barrels 65470

E&P waste (liquid) description Impacted water

COGCC Disposal Facility ID #, if applicable: 434766

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**

403606125	PHOTO DOCUMENTATION
403660531	SOIL SAMPLE LOCATION MAP
403660533	ANALYTICAL RESULTS

Total Attach: 3 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)