

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 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: (970) 515-1161
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Phil Hamlin	Email: Phillip_Hamlin@oxy.com	Mobile: ()

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 11947 Initial Form 27 Document #: 401663423

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: SPILL OR RELEASE	Facility ID: 454689	API #: _____	County Name: WELD
Facility Name: PC Gas Unit 1-26		Latitude: 40.106095	Longitude: -104.974768
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
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 Agriculture

Is domestic water well within 1/4 mile? No

Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

An occupied building is located approximately 1,120 feet (ft) northwest, and excavation groundwater approximately 4 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	See attached data	Groundwater Samples/Lab Analysis
Yes	SOILS	30' N-S x 12' E-W x 4' bgs (max)	Soil Samples/Lab Analysis

INITIAL ACTION SUMMARY

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

While excavating a flowline at the PC Gas Unit 1-26 facility, historical petroleum hydrocarbon impacts were encountered. The volume of the release is unknown. The petroleum hydrocarbon impacted soil was excavated.

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 March 26, 2018, four soil samples were collected from the excavation sidewalls for laboratory analysis of total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX), pH, and specific conductivity (EC). Analytical results indicated that TPH, BTEX, pH, and EC concentrations and levels were in full compliance with the Energy and Carbon Management Commission (ECMC) allowable levels at the time of excavation at the lateral extent of the excavation; however, Table 915-1 exceedances were present. The soil sample locations are depicted on Figure 1. The soil analytical results are summarized in Table 1.

The Pace Connelly Gas Unit #1-26 O SA facility, also known as the PC Gas Unit 1-26 facility, has been decommissioned. The remaining 915-1 soil exceedances that were present in the March 26, 2018 samples have been removed. Please refer to the Form 27 Supplemental dated April 28, 2024 (Remediation No. 26621; Document No. 403763093) for more details.

Proposed Groundwater Sampling

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

On March 26, 2018, groundwater sample GW01 was collected from the excavation and submitted for laboratory analysis of BTEX. Laboratory analytical results indicated sample GW01 exceeded the ECMC allowable level for benzene at a concentration of 42.4 micrograms per liter (µg/L). The excavation groundwater sample location is depicted on Figure 1. The groundwater sample analytical results are summarized in Table 2.

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):

The Pace Connelly Gas Unit #1-26 O SA facility, also known as the PC Gas Unit 1-26 facility, has been decommissioned and all infrastructure has been permanently removed. The remaining 915-1 soil exceedances that were present in the March 26, 2018 samples have been removed, along with the impacts reported under Spill/Release ID 483975, associated with Remediation No. 26621.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 4
Number of soil samples exceeding 915-1 0
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 360

NA / ND

-- Highest concentration of TPH (mg/kg) 10.4
NA Highest concentration of SAR
BTEX > 915-1
Vertical Extent > 915-1 (in feet) 4

Groundwater

Number of groundwater samples collected 181
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 2
Number of groundwater monitoring wells installed 10
Number of groundwater samples exceeding 915-1 106

-- Highest concentration of Benzene (µg/l) 3780
-- Highest concentration of Toluene (µg/l) 2.16
-- Highest concentration of Ethylbenzene (µg/l) 1720
-- Highest concentration of Xylene (µg/l) 14700
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?

A background soil sample was submitted to the laboratory and placed on hold for analysis. Laboratory analytical results for the excavation soil samples indicated that pH and EC levels were compliant at the extent of the excavation; therefore, the background soil sample was not run for laboratory analysis.

☐ 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?

The Pace Connelly Gas Unit #1-26 O SA facility, also known as the PC Gas Unit 1-26 facility, has been decommissioned and all infrastructure has been permanently removed. Excavation activities are ongoing. Please refer to the Form 27 Initial dated December 12, 2022 (Document No. 403256848) for more details. Monitoring well installation will be reevaluated 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.

Approximately 40 cubic yards of impacted soil were excavated in 2018 and transported to Front Range Landfill in Erie, Colorado, for disposal. The impacted soil was excavated into the capillary and phreatic zones to address potential hydrocarbon impacts that may have been present below the current groundwater table due to seasonal fluctuations.

Approximately 65,470 bbls of impacted water were excavated in 2023 and 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.

While backfilling the excavation, 50 pounds of COGAC®, a carbon-based bioremediation product designed to capture and degrade petroleum hydrocarbons via chemical oxidation and passive bio-stimulation, were applied to the clean backfill in a series of lifts in the capillary and phreatic horizons.

Additional COGAC has been added to the ongoing facility excavation and will be summarized as part of Remediation No. 26621.

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) _____ 22280
_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____
No _____ Excavate and onsite remediation
_____ Land Treatment
_____ Bioremediation (or enhanced bioremediation)
_____ Chemical oxidation
_____ Other _____

Groundwater Remediation Summary

Yes _____ Bioremediation (or enhanced bioremediation)
Yes _____ Chemical oxidation
No _____ Air sparge / Soil vapor extraction
Yes _____ Natural Attenuation
Yes _____ Other _____ COGAC® Application _____

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 MW01 through MW10 were sampled on a quarterly basis for the full list of analyses for groundwater in Table 915-1 prior to being destroyed during facility decommissioning activities. Cross-gradient and historically compliant groundwater monitoring well MW05 was established as a representative background sample for calculating the inorganic parameters in Table 915-1. Based on a comparison to background concentrations, point-of-compliance (POC) monitoring well MW10 was above the Table 915-1 standards for inorganic constituents during the first quarter 2023 monitoring event. Due to decommissioning activities, groundwater monitoring has not been conducted since the first quarter 2023 as all monitoring wells have been destroyed. The former monitoring well locations are depicted on Figure 1. Historical groundwater analytical results are summarized in Table 1.

The Pace Connelly Gas Unit #1-26 O SA facility, also known as the PC Gas Unit 1-26 facility, has been decommissioned and all infrastructure has been permanently removed. The remaining 915-1 soil exceedances that were present in the March 26, 2018 samples have been removed, along with the impacts reported under Spill/Release ID 483975, associated with Remediation No. 26621. All monitoring wells associated with Remediation No. 11947 were destroyed during decommissioning activities due to their locations within or nearby the excavation footprint. Therefore, Kerr-McGee requests evaluating the remaining impacts associated with this project under Remediation No. 26621 and requests a no further action ruling for Remediation No. 11947.

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 NFA Status Request

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: \$ 0

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 40

E&P waste (solid) description Impacted soil

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Front Range Landfill in Erie, Colorado

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

E&P waste (liquid) description Impacted groundwater

ECMC Disposal Facility ID #, if applicable: 434766

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? No

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? No

Is additional groundwater monitoring to be conducted? Yes

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. 03/03/2023

Actual Spill or Release date, or date of discovery. 03/27/2018

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/26/2018

Proposed site investigation commencement. 03/26/2018

Proposed completion of site investigation. 06/30/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/26/2018

Proposed date of completion of Remediation. 06/30/2027

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

The Pace Connelly Gas Unit #1-26 O SA facility, also known as the PC Gas Unit 1-26 facility, has been decommissioned and all infrastructure has been permanently removed. The remaining 915-1 soil exceedances that were present in the March 26, 2018 samples have been removed, along with the impacts reported under Spill/Release ID 483975, associated with Remediation No. 26621. Therefore, Kerr-McGee requests evaluating the remaining impacts associated with this project under Remediation No. 26621 and requests a no further action ruling for Remediation No. 11947.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: Phil Hamlin

Title: Senior Environmental Rep.

Submit Date: _____

Email: Phillip_Hamlin@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: 11947

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**

403817504	GROUND WATER ELEVATION MAP
403825547	ANALYTICAL RESULTS
403826089	SITE MAP
403829374	SITE MAP

Total Attach: 4 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)