

State of Colorado Oil and Gas Conservation Commission

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Report taken by:

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.

Refer to Rules 340, 905, 906, 907, 908, 909, and 910

OPERATOR INFORMATION

Name of Operator: KERR MCGEE OIL & GAS ONSHORE LP	Operator No: 47120	Phone Numbers
Address: P O BOX 173779		Phone: (970) 336-3500
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Phil Hamlin	Email: Phil_Hamlin@oxy.com	Mobile: ()

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 15163

Initial Form 27 Document #: 402325172

PURPOSE INFORMATION

- | | |
|--|--|
| <input type="checkbox"/> 901.e. Sensitive Area Determination | <input checked="" type="checkbox"/> 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water |
| <input type="checkbox"/> 909.c.(1), Rule 905: Pit or PW vessel closure | <input type="checkbox"/> Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b. |
| <input checked="" type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation | <input type="checkbox"/> Rule 909.e.(2)B.: Closure of remediation project |
| <input type="checkbox"/> 909.c.(3), Rule 907.e.: Land treatment of oily waste | <input type="checkbox"/> Rule 906.c.: Director request |
| <input type="checkbox"/> 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure | <input type="checkbox"/> Other |

SITE INFORMATION

N Multiple Facilities (in accordance with Rule 909.c.)

Facility Type: SPILL OR RELEASE	Facility ID: 469883	API #:	County Name: WELD
Facility Name: Camp 13-19A	Latitude: 40.207980	Longitude: -104.826563	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: NWSW	Sec: 19	Twp: 3N	Range: 66W
		Meridian: 6	Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications CL

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

Water well located approximately 130 feet (ft) northeast, surface water (Farmers Independent Ditch) located approximately 50 ft west, wetlands located approximately 300 ft northwest, occupied building and livestock approximately 280 ft southeast, and excavation groundwater approximately 5 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	59' N-S x 10'E-W x 6.5' bgs	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.

During dump line removal activities associated with the Camp 13-19A facility, historical petroleum hydrocarbon impacts to the subsurface were encountered. The volume of the release is unknown. An excavation groundwater sample (GW01) collected on December 10, 2019 indicated benzene exceeded the COGCC Table 910-1 allowable level for groundwater.

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 December 10 and 16, 2019, eleven soil samples were collected from the base and sidewalls of the dump line excavation and submitted for laboratory analysis of total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and naphthalene. The base soil samples were also analyzed for pH, specific conductivity (EC), and sodium adsorption ratio (SAR). Laboratory analytical results for the soil samples indicated that TPH, BTEX, naphthalene, pH, EC, and SAR concentrations and levels are in full compliance with COGCC Table 910-1 allowable levels at the extent of the excavation.

Proposed Groundwater Sampling

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

On December 10, 2019, one groundwater sample (GW01) was collected from the excavation for BTEX analysis. Laboratory analytical results indicated that sample GW01 exceeded the COGCC Table 910-1 allowable level for benzene at 37.8 micrograms per liter (µg/L). On December 13, 2019, following the removal of impacted groundwater, groundwater sample GW02 was collected from the excavation. Laboratory analytical results indicated that sample GW02 was in full compliance with COGCC Table 910-1 allowable levels. The excavation groundwater sample locations are depicted on Figure 1. The groundwater sample analytical results are summarized in Table 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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 11
Number of soil samples exceeding 910-1 3
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 590

NA / ND

-- Highest concentration of TPH (mg/kg) 1988
-- Highest concentration of SAR 5.46
BTEX > 910-1 No
Vertical Extent > 910-1 (in feet) 6

Groundwater

Number of groundwater samples collected 29
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 5'
Number of groundwater monitoring wells installed 9
Number of groundwater samples exceeding 910-1 1

-- Highest concentration of Benzene (µg/l) 37.8
ND Highest concentration of Toluene (µg/l)
-- Highest concentration of Ethylbenzene (µg/l) 4.44
ND Highest concentration of Xylene (µg/l)
NA Highest concentration of Methane (mg/l)

Surface Water

0 Number of surface water samples collected
 Number of surface water samples exceeding 910-1
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 excavation soil samples indicated 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?

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 120 cubic yards of petroleum hydrocarbon impacted soil were removed from the excavation and transported to Front Range Landfill in Erie, Colorado, for disposal, and approximately 70 cubic yards of impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling. The petroleum hydrocarbon impacted soil was excavated into the phreatic zone to address potential hydrocarbon impacts that may have been present below the current groundwater table due to seasonal fluctuations. Approximately 470 barrels of impacted groundwater were removed from the excavation and transported to the Aggregate Recycling Facility in Weld County, Colorado, for recycling. The general site layout and excavation footprint are depicted on the Site Map provided as Figure 1.

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, 200 pounds of COGAC®, a carbon-based groundwater remediation product designed to capture and degrade petroleum hydrocarbons via chemical oxidation and passive bio-stimulation, was applied to the clean backfill in a series of lifts in the capillary and phreatic horizons.

Soil Remediation Summary

☐ In Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☒ Ex Situ

Yes _____ Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) _____ 190

Name of Licensed Disposal Facility or COGCC Facility ID # _____ 149007

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 and Groundwater Removal

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 MW09 are sampled on a quarterly basis and submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes by United States Environmental Protection Agency Method 8260D. The monitoring well locations are depicted on Figure 1. The Groundwater Elevation Contour Map generated using the February 2021 survey data is provided as Figure 2. The groundwater analytical results are summarized in Table 1.

Groundwater has been compliant with COGCC Table 910-1 allowable levels for BTEX for three consecutive groundwater monitoring events. If groundwater continues to remain compliant for one more quarter, this site will have achieved four consecutive quarterly monitoring events by May 2021. Kerr-McGee Oil and Gas Onshore, LP is requesting a variance to continue sampling groundwater for BTEX under the COGCC Table 910-1 standards, as defined under the 900 Series Rule 915.f. for Remediations in Progress. If compliance is lost and quarterly monitoring is projected to continue past January 15, 2022, groundwater monitoring will switch to include the full list of Table 915-1 analyses.

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☒ Annually ☐ Other _____

Report Type: ☒ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report
☐ Other _____

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 120 cubic yards of petroleum hydrocarbon impacted soil were transported to Front Range Landfill in Erie, Colorado, for disposal, and approximately 70 cubic yards of impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling. The petroleum hydrocarbon impacted groundwater was transported to the Aggregate Recycle Facility in Weld County, Colorado, for recycling.

Volume of E&P Waste (solid) in cubic yards _____ 190

E&P waste (solid) description Petroleum hydrocarbon impacted soil

COGCC Disposal Facility ID #, if applicable: _____ 149007

Non-COGCC Disposal Facility: Front Range Landfill in Erie, Colorado
(120 cubic yards)

Volume of E&P Waste (liquid) in barrels _____ 470

E&P waste (liquid) description Petroleum hydrocarbon impacted
groundwater

COGCC Disposal Facility ID #, if applicable: _____ 434766

Non-COGCC Disposal Facility: _____

REMEDATION COMPLETION REPORT

REMEDATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No _____

Do all soils meet Table 910-1 standards? Yes _____

Does the previous reply indicate consideration of background concentrations? No _____

Are the only residual soil impacts pH, SAR, or EC at depths greater than 3 feet below ground surface? _____

Does Groundwater meet Table 910-1 standards? Yes _____

Is additional groundwater monitoring to be conducted? Yes _____

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 Kerr-McGee facility was decommissioned. The site will be reclaimed in accordance with COGCC 1000 Series Reclamation Rules.

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 approve the seed mix? _____

If NO, does the seed mix comply with local soil conservation district recommendations? _____

IMPLEMENTATION SCHEDULE

PRIOR DATES

Date of Surface Owner notification/consultation, if required. 12/12/2019

Actual Spill or Release date, if known. 12/11/2019

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/10/2019

Date of commencement of Site Investigation. 12/11/2019

Date of completion of Site Investigation. 08/28/2020

REMEDIAL ACTION DATES

Date of commencement of Remediation. 12/10/2020

Date of completion of Remediation.

SITE RECLAMATION DATES

Date of commencement of Reclamation.

Date of completion of Reclamation.

OPERATOR COMMENT

Pursuant to the recently approved Rule 915.f. for sites that are subject to an open Form 27, we are seeking the Director's approval to continue to seek compliance with Table 910-1 until such time that remediation is completed, or until January 15, 2022, whichever comes first.

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: Phil_Hamlin@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: 15163

COA Type

Description

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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

402627390	SITE MAP
402627391	GROUND WATER ELEVATION MAP
402627392	ANALYTICAL RESULTS

Total Attach: 3 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)