FORM
27
Rev 3/16

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 INFORMATON

Name of Operator: KERR MCGEE OIL & GAS ONSHORE LP Operator No: 47120

Address: P O BOX 173779
City: DENVER State: CO Zip: 80217-3779
Contact Person: Phillip Hamlin Email: Phil_Hamlin@oxy.com

Phone Numbers
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PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 12739 Initial Form 27 Document #: 401961182

PURPOSE INFORMATION

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

SITE INFORMATION

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

Facility Type: SPILL OR RELEASE Facility ID: 461162 API #: County Name: WELD
Facility Name: SPILL/RELEASE POINT Latitude: 40.247889 Longitude: -104.786169
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SESW Sec: 4 Twp: 3N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SC Most Sensitive Adjacent Land Use Crop Land
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

A livestock holding pen is located approximately 200 feet west of the release location. A building is located approximately 435 feet northwest of the release location.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
- [ ] Produced Water
- [ ] Oil
- [x] Condensate
- [ ] Drilling Fluids
- [ ] Drill Cuttings

- [ ] **Other E&P Waste**
- [ ] Workover Fluids
- [ ] Tank Bottoms
- [ ] Pigging Waste
- [ ] Rig Wash
- [ ] Spent Filters
- [ ] Pit Bottoms
- [ ] Other (as described by EPA) _____

- [ ] **Non-E&P Waste**

_____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	See attached data	Groundwater sampling and laboratory analysis
Yes	SOILS	32' (E-W) x 30' (N-S) x 4.5' bgs	Excavation, soil sampling, and laboratory 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.

On January 22, 2019, historical impacts were discovered during the abandonment of a gas sales line associated with the Kern L 4-14 production facility, and excavation activities were initiated. Groundwater was encountered in the excavation area at approximately 4.5 feet below ground surface (bgs). The COGCC has issued Spill/Release Point ID 461162 for this release.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

[x] Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

Soil samples were collected as described in the Initial Form 27 (COGCC Document No. 401961182). Based on the data presented, impacted soils in the excavation area were remediated to be in full compliance with the COGCC Table 910-1 standards. Soil sample analytical data is presented in Table 1, and the soil sample locations are illustrated on Figure 1.

Proposed Groundwater Sampling

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

Groundwater sample GW01 was collected from the excavation following the removal of approximately 40 bbls of groundwater and submitted for BTEX analysis. Analytical results indicated that the benzene concentration in GW01 exceeded the COGCC Table 910-1 standard. Sample GW02 was collected from the excavation following the removal of approximately 345 additional bbls of groundwater, and submitted for BTEX analysis. Analytical results indicated that the benzene concentration in GW02 remained above the COGCC standard. Quarterly groundwater monitoring was initiated on September 23, 2019, at temporary monitoring wells BH01 - BH04, and was continued until BTEX concentrations remained in compliance with COGCC Table 910-1 standards for four consecutive quarters. BH05 was installed to ensure cross-gradient POC had been established and was sampled for three quarters. Laboratory analysis indicates that BH05 has been in compliance with COGCC Table 910-1 standards for three consecutive quarters.

Proposed Surface Water Sampling

[ ] Will surface water samples be collected as part of this investigation? (Number, analyses, and locations of samples):

Additional Investigative Actions

[x] Additional alternative investigative actions described in attached Site Investigation Plan (summary):

Groundwater analytical data is presented in Table 2. The excavation groundwater sample locations are illustrated on Figure 1; monitoring well locations are illustrated on Figures 2 through 5. Laboratory analytical reports for the previous four quarters of groundwater monitoring are provided as Attachment A.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 5

Number of soil samples exceeeding 910-1 1

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 830

NA / ND

-- Highest concentration of TPH (mg/kg) 3151

NA Highest concentration of SAR

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 4

Groundwater

Number of groundwater samples collected 21

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 3`

Number of groundwater monitoring wells installed 5

Number of groundwater samples exceeding 910-1 2

-- Highest concentration of Benzene (µg/l) 41.1

-- Highest concentration of Toluene (µg/l) 286

-- Highest concentration of Ethylbenzene (µg/l) 74.5

-- Highest concentration of Xylene (µg/l) 1030

NA Highest concentration of Methane (mg/l)

Surface Water

0 Number of surface water samples collected

0 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?

☐ 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.

On January 22 and 23, 2019, approximately 190 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado. Laboratory analytical results indicated that constituent concentrations in the soil samples collected from the final lateral extent of the excavation area were in full compliance with the COGCC Table 910-1 standards. Soils were excavated into the phreatic zone to address potential hydrocarbon impacts that may have been present below the current groundwater table due to seasonal fluctuations. The final excavation extent and associated sample locations are illustrated on Figure 1. Approximately 385 barrels of impacted groundwater were removed from the excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for treatment.

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.

Prior to backfilling, approximately 110 pounds of OxPure® activated carbon were added to the groundwater within the excavation area to mitigate remaining hydrocarbon impacts in groundwater. The SDS for the activated carbon used at this location is provided as Attachment B. Based on the analytical data presented herein, remediation is complete at this site and Kerr-McGee is requesting a No Further Action (NFA) determination for this release.

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

- No Bioremediation (or enhanced bioremediation)
- No Chemical oxidation
- No Air sparge / Soil vapor extraction
- Yes Natural Attenuation
- Yes Other Groundwater removal, OxPure® activated carbon 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.

Between September 9 and December 10, 2019, five (5) temporary groundwater monitoring wells (BH01 - BH05) were installed to further assess the extent of groundwater impacts. The temporary groundwater monitoring wells were sampled on a quarterly basis and submitted for laboratory analysis of BTEX. Analytical results for the groundwater samples collected from the temporary monitoring wells indicate that constituent concentrations were in full compliance with the COGCC Table 910-1 standards for four consecutive quarters. During the initial Third Quarter 2019 monitoring event, groundwater flow was to the southwest, with downgradient point-of-compliance (POC) maintained by well BH02. Based on the groundwater flow direction, one additional monitoring well (BH05) was installed prior to the Fourth Quarter 2019 monitoring event, to ensure that POC was maintained in all directions. Analytical results for the subsequent quarterly groundwater monitoring events confirmed that constituent concentrations were in full compliance with the COGCC standards, and that POC was maintained. Temporary groundwater monitoring well locations and quarterly groundwater elevation contour maps are illustrated on Figures 2 through 5. Well completion logs for the temporary monitoring wells are provided as Attachment B.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other Final Report

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

☒ Other NFA Request

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 190 cubic yards of hydrocarbon-impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 385 barrels of hydrocarbon-impacted groundwater were transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling.

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

E&P waste (solid) description Hydrocarbon-impacted soil

COGCC Disposal Facility ID #, if applicable: 149007

Non-COGCC Disposal Facility:

Volume of E&P Waste (liquid) in barrels 385

E&P waste (liquid) description Hydrocarbon-impacted groundwater

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? Yes

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? No

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 has been restored to its pre-release grade. Kerr-McGee will conduct reclamation activities in accordance with COGCC 1000 Series 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. 01/23/2019

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 01/22/2019

Date of commencement of Site Investigation. 01/22/2019

Date of completion of Site Investigation. 12/10/2019

REMEDIAL ACTION DATES

Date of commencement of Remediation. 01/22/2019

Date of completion of Remediation. 06/01/2020

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

As described, laboratory analytical data for the soil samples collected from the final lateral extent of the excavation area were in full compliance with the COGCC Table 910-1 standards. Laboratory analytical data for the groundwater samples collected from the temporary monitoring wells indicated that constituent concentrations were in full compliance with the COGCC Table 910-1 standards for four consecutive quarters, with exception to BH05, which was installed in the Fourth Quarter 2019 to verify POC following the initial groundwater monitoring event. Soil analytical results are summarized in Table 1, and groundwater analytical results are summarized in Table 2. Excavation soil and groundwater sample locations are illustrated on Figure 1, and temporary monitoring well locations and quarterly groundwater contour maps are illustrated on Figures 2 through 5. Laboratory analytical reports are provided as Attachment A; the SDS for the activated carbon used at this location is provided as Attachment B; and temporary monitoring well completion diagrams are provided as Attachment C. Based on the remediation activities completed at the site and the analytical results presented herein, Kerr-McGee is requesting an NFA determination for this release.

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

Signed:` Phillip 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: 12739

COA Type	Description

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
402431371	LOGS
402431375	SOIL SAMPLE LOCATION MAP
402431377	GROUND WATER ELEVATION MAP
402431378	ANALYTICAL RESULTS
402431380	ANALYTICAL RESULTS
402431382	ANALYTICAL RESULTS
402431383	OTHER

Total Attach: 7 Files

General Comments

User Group	Comment	Comment Date
Environmental	25Jun2020 back to draft for attachments to be added	06/25/2020

Total: 1 comment(s)