FORM 27 Rev 5/22

# 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.
Closure request is not available for an Initial Site Investigation and Remediation Workplan.

## OPERATOR INFORMATON

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
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## PROJECT, PURPOSE & SITE INFORMATION

### PROJECT INFORMATION

Remediation Project #: 24758 Initial Form 27 Document #: 403137797

### 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.
- [X] 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: WELL Facility ID: API #: 123-07404 County Name: WELD
Facility Name: STRONG P 28-2 Latitude: 40.200392 Longitude: -104.891293
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: NWNE Sec: 28 Twp: 3N Range: 67W 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**

## SITE INVESTIGATION PLAN

### TYPE OF WASTE:

- [X] **E&P Waste**
  - [X] Produced Water
  - [X] 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 |
|---|---|---|---|
| No | GROUNDWATER | No hydrocarbon impacts observed | groundwater samples/laboratory analytical results |
| Yes | SOILS | 10' (N-S) x 25' (E-W) x 11' bgs | inspection/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.

Wellhead cut and cap operations were completed at the Strong P 28-2 wellhead on September 8, 2022. Groundwater was encountered in the wellhead cut and cap excavation during decommissioning activities at approximately 11' below ground surface (bgs). Visual inspection and field screening of soils around the well and associated pumping equipment was conducted following wellhead cut and cap operations, and a soil sample (WH-B01@6') was submitted for laboratory analysis to determine if a release occurred. Laboratory analytical results indicated that naphthalene, 1,2,4 - trimethylbenzene (TMB), 1,3,5-TMB, total petroleum hydrocarbons, 1-methylnaphthalene, 2-methylnaphthalene, arsenic, barium, cadmium, and selenium impacts exceeding COGCC Table 915-1 were present at the former wellhead location. As such, a Form 19-Initial/Supplemental Spill/Release Report (COGCC Document No. 403158098) was submitted on September 9, 2022, and the COGCC issued Spill/Release Point ID 482916. The removal of the associated flowline was completed on September 9, 2022. A soil sample was collected from the location where the flowline riser was disconnected at the wellhead (FL-B01@2') and separator (FL-B02@3') and submitted for laboratory analysis to determine if a release occurred. A topographic Site Location Map showing the geographic setting of the site location is provided as Figure 1. Soil sample location and field screening data are presented in Table 1. The soil sample and field screening locations are illustrated on Figure 2. The field notes and a photographic log are provided as Attachment B.

### 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 ):

From September 7 through November 1, 2022, excavation activities were conducted to address remaining soil impacts at the former wellhead location, and 8 confirmation soil samples were collected from the base and sidewalls of the final excavation extent at depths ranging from approximately 1 to 11 feet bgs. Based on the analytical results for waste characterization soil sample WH-B01@6', the confirmation soil samples were submitted for laboratory analysis of naphthalene, TMBs, TPH, boron, pH, PAHs, arsenic, barium, cadmium, nickel, and selenium. Analytical results for the soil samples collected from the final excavation extent were in compliance with the applicable COGCC Table 915-1 standards with exception to the arsenic, barium, and selenium concentrations in multiple samples. However, Kerr-McGee is requesting the Director's approval to leave the remaining metal impacts in-place at this time, to be addressed through quarterly groundwater monitoring.

### Proposed Groundwater Sampling

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

Groundwater was encountered within the wellhead excavation at approximately 11 feet bgs. On November 1, 2022, a groundwater sample (GW-01) was collected from the excavation area and submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-TMB, and 1,3,5-TMB by USEPA Method 8260D. Groundwater analytical results indicated that constituent concentrations in sample GW-01 were in compliance with COGCC Table 915-1 standards. Groundwater analytical results are summarized in Table 6. The groundwater sample location is illustrated on Figure 2. Based on the remaining metal impacts in the wellhead excavation area, future groundwater samples will be submitted for the COGCC Table 915-1 groundwater analytical suite, as well as dissolved arsenic, barium, and selenium.

### 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 September 8 2022, visual inspection and field screening of soils was conducted at four sidewall locations within the wellhead excavation area and three locations at the ground surface adjacent to the excavation. Based on the inspection and screening results, no soil samples were submitted from these areas in accordance with COGCC Operator Guidance. Following cut and cap operations, a soil gas survey was conducted. Five soil vapor points (SVP) were installed adjacent to the former wellhead. GEM 5000 readings were non-detect for methane. The SVP locations are illustrated on Figure 2 and SVP screening results are summarized in Table 7. The laboratory analytical report is provided as Attachment A. The field notes and a photographic log are provided as Attachment B.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

**Soil**

Number of soil samples collected: 20
Number of soil samples exceeeding 915-1: 7
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet): 250

**NA / ND**

-- Highest concentration of TPH (mg/kg): 1538
-- Highest concentration of SAR: 2.17
BTEX > 915-1: No
Vertical Extent > 915-1 (in feet): 11

**Groundwater**

Number of groundwater samples collected: 1
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet): 11
Number of groundwater monitoring wells installed: 0
Number of groundwater samples exceeding 915-1: 0

ND Highest concentration of Benzene (µg/l):
-- Highest concentration of Toluene (µg/l): 2.17
ND Highest concentration of Ethylbenzene (µg/l):
-- Highest concentration of Xylene (µg/l): 5.17
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?

Background soil samples WH-BG01@3', WH-BG02@3', WH-BG01@6', WH-BG02@6', WH-BG03@10, and WH-BG04@10' were collected from native material adjacent to the wellhead cut and cap excavation. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and Metals using standard methods appropriate for detecting target analytes in Table 915-1. Analytical results for the background soil samples are presented in Tables 3 and 5.

☐ 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?

Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining soil impacts. Based on the remaining metal impacts in the wellhead excavation area, the temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of the COGCC Table 915-1 groundwater analytical suite, as well as dissolved arsenic, barium, and selenium.

# 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.

Between September 7 and November 1, 2022, approximately 120 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal; approximately 10 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Laboratory analytical results indicate that constituent concentrations in the confirmation soil samples collected from the final lateral and vertical extents of the wellhead excavation area were in compliance with COGCC Table 915-1 standards, with exception to the arsenic, barium, and selenium concentrations in multiple samples. However, Kerr-McGee is requesting the Director's approval to leave the remaining metal impacts in-place at this time, to be addressed through quarterly groundwater monitoring. 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 analytical results indicate that constituent concentrations in the confirmation soil samples collected from the final lateral and vertical extents of the wellhead excavation area were in compliance with COGCC Table 915-1 standards, with exception to the arsenic, barium, and selenium concentrations in multiple samples. However, Kerr-McGee is requesting the Director's approval to leave the remaining metal impacts in-place at this time, to be addressed through quarterly groundwater monitoring. Hydrocarbon-impacted soil was not observed during field inspection and soil screening activities at the 4 sidewall locations within the cut and cap, 3 locations at the ground surface adjacent to the excavation, and 3 pothole locations during flowline removal. Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining soil impacts. Based on the remaining metal impacts in the wellhead excavation area, the temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of the COGCC Table 915-1 groundwater analytical suite, as well as dissolved arsenic, barium, and selenium. Estimated time to attain NFA is TBD based on the groundwater concentrations, the extent of impacted groundwater, and the efficacy of the selected remedial technologies.

### 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) 130
  - 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
- No — Natural Attenuation
- No — 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 at the site to fully define the extent and magnitude of the remaining soil impacts. Based on the remaining metal impacts to soil in the wellhead excavation area, the temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of the COGCC Table 915-1 groundwater analytical suite, as well as dissolved arsenic, barium, and selenium. A groundwater monitoring location figure illustrating the locations of the surveyed temporary monitoring wells will be provided in a Form 27-Supplemental update.

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

**Approved Reporting Schedule:**

[X] 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

[X] Other Remediation progress update

## 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 Colorado Oil and Gas Conservation Commission. The cost for remediation is a preliminary estimate only, costs may change upwards or downwards 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: $ 9500

## 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 10 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 130

E&P waste (solid) description impacted soil

COGCC Disposal Facility ID #, if applicable: 149007

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

Volume of E&P Waste (liquid) in barrels 0

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? No

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? Yes

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 COGCC 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. 08/15/2022

Actual Spill or Release date, or date of discovery. 09/07/2022

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/07/2022

Proposed site investigation commencement. 09/07/2022

Proposed completion of site investigation.

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 09/07/2022

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

Kerr-McGee is requesting the Director's approval to leave the remaining metal impacts in multiple soil samples in-place at this time, to be addressed through quarterly groundwater monitoring. Based on the remaining metal impacts in the wellhead excavation area, future groundwater samples will be submitted for the COGCC Table 915-1 groundwater analytical suite, as well as dissolved arsenic, barium, and selenium. Form 27-Supplemental updates will be submitted to the COGCC on a quarterly basis until the extent of groundwater impacts has been fully delineated.

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 Consultant

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: 24758

| 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 |
|---|---|
| 403304900 | SITE MAP |
| 403304911 | ANALYTICAL RESULTS |
| 403304918 | OTHER |
| 403305583 | ANALYTICAL RESULTS |
| 403305628 | SOIL SAMPLE LOCATION MAP |
| 403305634 | SOIL SAMPLE LOCATION MAP |

Total Attach: 6 Files

## General Comments

| User Group | Comment | Comment Date |
|---|---|---|
| | | Stamp Upon Approval |

Total: 0 comment(s)