

State of Colorado  
Oil and Gas Conservation Commission

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Document Number:

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Receive Date:

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.

Report taken by:

OPERATOR INFORMATION

|   |                                 |                        |
|---|---------------------------------|------------------------|
| Name of Operator: KERR MCGEE OIL & GAS ONSHORE LP | Operator No: 47120              | <b>Phone Numbers</b>   |
| Address: P O BOX 173779                           |                                 | Phone: (970) 336-3500  |
| City: DENVER                                      | State: CO                       | Zip: 80217-3779        |
| Contact Person: Gregory Hamilton                  | Email: Gregory_Hamilton@oxy.com | Mobile: (970) 515-1698 |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 20486 Initial Form 27 Document #: 402842917

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

Yes  Multiple Facilities

|  |                     |                        |  |
|--|---------------------|------------------------|--|
| Facility Type: TANK BATTERY                        | Facility ID: 329585 | API #: _____           | County Name: WELD                          |
| Facility Name: HOUSTON-63N67W 17SENE               | Latitude: 40.227200 | Longitude: -104.907490 |  |
| ** correct Lat/Long if needed: Latitude: 40.227416 |                     | Longitude: -104.908372 |  |
| QtrQtr: SENE                                       | Sec: 17             | Twp: 3N                | Range: 67W Meridian: 6 Sensitive Area? Yes |

|   |                     |                        |  |
|---|---------------------|------------------------|--|
| Facility Type: SPILL OR RELEASE                   | Facility ID: 481301 | API #: _____           | County Name: WELD                          |
| Facility Name: Houston 17-8L Tank Battery Release | Latitude: 40.227439 | Longitude: -104.908658 |  |
| ** correct Lat/Long if needed: Latitude: _____    |                     | Longitude: _____       |  |
| QtrQtr: SENE                                      | Sec: 17             | 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? No

### Other Potential Receptors within 1/4 mile

Multiple buildings and livestock holding pens are located within ¼ mile of the facility.  
The nearest building is located approximately 1,150 feet southwest of the facility.  
The nearest domestic water well is located approximately 1,140 feet north of the facility.  
Surface water is located approximately 190 feet northwest of the facility.  
A wetland is located approximately 190 feet northwest of the facility.  
The facility is located within a ¼ mile of a designated high priority habitat.

## 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       | SOILS          | 34' (E-W) x 32' (N-S) x 20' 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.

On December 17, 2021, facility decommissioning activities were conducted at the Houston 17-7L, 17-8L O SA Production Facility. On December 20, 2021, historical soil impacts were discovered below the former separator, dump lines, and produced water vessel (PWV), and additional excavation activities were initiated. Additionally, historical soil impacts were discovered during removal of the flowline riser for the associated Houston 17-8L wellhead at the location, where it was disconnected from the separator. Groundwater has not been encountered during facility decommissioning or subsequent excavation activities at this site. A Form 19-Initial/Supplemental Spill/Release Report was submitted on December 22, 2021, and the COGCC issued Spill/Release Point ID 481301. A partially-buried produced water vessel (PWV) was removed during facility decommissioning activities. Excavation and site assessment activities are ongoing, and will be summarized in a forthcoming Form 27-Supplemental update. On December 17, 2021, additional soil samples were also collected from the former separator, above-ground storage tank (AST), and PWV sidewall locations, at depths of approximately 3 inches to 4 feet below ground surface (bgs). These soil samples were submitted for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, naphthalene, and total petroleum hydrocarbons (TPH) - gasoline range organics (GRO: C6-C10) by United States Environmental Protection Agency (USEPA) Method 8260D, and TPH - diesel and oil range organics (DRO: C10-C28 & ORO: C28-C40) by USEPA Method 8015D. Analytical results for the remaining soil samples collected from the former separator, AST, and PWV sidewall locations were in compliance with COGCC Table 915-1 standards. Soil sample location and field screening data are presented in Table 1. The soil sample and field screening locations are illustrated on Figure 1.

### 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 ):

Soil samples have been collected from the base and sidewalls of the separator/flowline riser/dump line excavation and the PWV excavation, at depths ranging from approximately 3 inches to 20 feet bgs. The initial soil samples (SEP-B02@3", DL-B02@3', FL-B05@3', PW-B01@5') were used for waste characterization and were submitted for laboratory analysis of the full COGCC Table 915-1 analytical suite, using standard methods appropriate for detecting the target analytes. Analytical results indicated that soil impacts were present due to TPH, BTEX, TMB, and PAH concentrations above COGCC Table 915-1 standards. Based on the initial waste characterization soil analytical results, subsequent confirmation soil samples will continue to be submitted for laboratory analysis of BTEX, TMB, TPH, and PAHs. Excavation and site assessment activities are ongoing, and will be summarized in a forthcoming Form 27-Supplemental update. Soil analytical results are summarized in Tables 2 through 5.

#### Proposed Groundwater Sampling

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

Groundwater has not been encountered during facility decommissioning or subsequent excavation activities. If groundwater is encountered during ongoing excavation or site assessment activities, a minimum of one grab sample will be collected as soon as practical. Groundwater samples will be submitted to an accredited laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4- and 1,3,5-TMB, using standard methods appropriate for detecting the target analytes in COGCC Table 915-1.

### 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 ):

On December 17, 2021, visual inspection and field screening of soils was conducted at one location below the former emission control device (ECD), one location at the former AST, three PWV sidewall locations, and two additional locations during dump line removal. Based on the inspection and screening results, hydrocarbon-impacted soil was not observed at the soil screening locations. As a result, no soil samples were submitted for laboratory analysis from these areas in accordance with the COGCC Operator Guidance for Oil & Gas Facility Closure document. Soil and groundwater sample location and field screening data are presented in Table 1. Soil analytical results are summarized in Tables 2 through 5. The soil sample and field screening locations are illustrated on Figure 1. The laboratory analytical reports are 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 17

Number of soil samples exceeding 915-1 5

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 535

#### NA / ND

-- Highest concentration of TPH (mg/kg) 5290

-- Highest concentration of SAR 17.5

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 20

#### Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet)         

Number of groundwater monitoring wells installed         

Number of groundwater samples exceeding 915-1         

Highest concentration of Benzene (µg/l)         

Highest concentration of Toluene (µg/l)         

Highest concentration of Ethylbenzene (µg/l)         

Highest concentration of Xylene (µg/l)         

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 PW-BG01@2.5' - PW-BG03@2.5' and PW-BG01@5' - PW-BG04@5' were collected from native material adjacent to the production facility location, at depths of approximately 3 inches and 4 feet bgs. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and Table 915-1 metals using standard methods appropriate for detecting the target analytes in Table 915-1. Analytical results for the background soil samples are summarized in Tables 4 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?

Impacted soil remains at the site. Excavation and site assessment activities are ongoing, and will be summarized in a forthcoming Form 27-Supplemental update.

# 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 December 17, 2021 and March 2, 2022, approximately 50 cubic yards of impacted material have been excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling, and approximately 60 cubic yards of impacted material have been excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Excavation activities are ongoing and impacted soil will continue to be transported off-site for disposal at a licensed disposal facility.

## **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 impacted soil remains at the former PWV location. Excavation activities to address remaining soil impacts are currently ongoing and will be summarized in a forthcoming Form 27-Supplemental update once complete. Estimated time to attain NFA is TBD based on the extent of soil impacts.

## **Soil Remediation Summary**

In Situ

Ex Situ

       Bioremediation ( or enhanced bioremediation )

       Yes        Excavate and offsite disposal

       Chemical oxidation

       If Yes: Estimated Volume (Cubic Yards)        110

       Air sparge / Soil vapor extraction

       Name of Licensed Disposal Facility or COGCC Facility ID #        149007

       Natural Attenuation

       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.

# 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 Remediation progress update

## 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 50 cubic yards of impacted soil have been transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 110

E&P waste (solid) description Impacted soil

COGCC Disposal Facility ID #, if applicable: 149007

Non-COGCC Disposal Facility: Buffalo Ridge Landfill - Keenesburg, 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? \_\_\_\_\_

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. 12/21/2021

Actual Spill or Release date, or date of discovery. 12/20/2021

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/17/2021

Proposed site investigation commencement. 12/17/2021

Proposed completion of site investigation. \_\_\_\_\_

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/17/2021

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:

\_\_\_\_\_

