

# State of Colorado Oil and Gas Conservation Commission

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Document Number:

402957578

Receive Date:

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 INFORMATION

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

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 19714 Initial Form 27 Document #: 402781851

#### 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: WELL	Facility ID: _____	API #: 123-21673	County Name: WELD
Facility Name: WEST FARM 2-14A		Latitude: 40.227950	Longitude: -104.854710
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWNE	Sec: 14	Twp: 3N	Range: 67W Meridian: 6 Sensitive Area? Yes
Facility Type: TANK BATTERY	Facility ID: 446409	API #: _____	County Name: WELD
Facility Name: DONALD K NORGREN C UNIT-63N67W 14SWNE		Latitude: 40.227252	Longitude: -104.853912
** correct Lat/Long if needed: Latitude: 40.226968		Longitude: -104.853673	
QtrQtr: SWNE	Sec: 14	Twp: 3N	Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: <u>SPILL OR RELEASE</u>		Facility ID: <u>481148</u>	API #: _____	County Name: <u>WELD</u>	
Facility Name: <u>West Farm 2-14A Flowline Release</u>		Latitude: <u>40.227220</u>		Longitude: <u>-104.854050</u>	
** correct Lat/Long if needed: Latitude: _____ Longitude: _____					
QtrQtr: <u>SWNE</u>	Sec: <u>14</u>	Twp: <u>3N</u>	Range: <u>67W</u>	Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>

## **SITE CONDITIONS**

General soil type - USCS Classifications SW Most Sensitive Adjacent Land Use Non-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**

Multiple buildings and livestock holding pens are located within ¼ mile of the facility.  
 The nearest building is located approximately 1,050 feet to the southwest.  
 The nearest domestic water well is located approximately 640 feet to the south.  
 Surface water is located approximately 170 feet to the east.  
 The wellhead is located within 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	GROUNDWATER	See attached data	Groundwater samples/laboratory analytical results
Yes	SOILS	65' (E-W) x 70' (N-S) x 5' 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 West Farm 2-14A wellhead on September 8, 2021. Groundwater was encountered in the wellhead cut and cap excavation at approximately 3 feet 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 soil and groundwater samples were submitted for laboratory analysis to determine if a release occurred. Analytical results indicated that constituent concentrations in the wellhead soil and groundwater samples were in compliance with COGCC Table 915-1 standards. The flowline associated with this wellhead was removed on November 19, 2021. Based on field screening along the flowline, soil sample FL-B04@4' was submitted for laboratory analysis of the full Table 915-1 analytical suite, using standard methods appropriate for detecting the target analytes. Analytical results indicated that soil impacts due to 1,2,4-trimethylbenzene (TMB) and polycyclic aromatic hydrocarbons (PAH) were present at the former flowline location. As such, a Form 19-Initial/Supplemental Spill/Release Report was submitted on November 23, 2021, and the COGCC issued Spill/Release Point ID 481148. During impacted soil excavation activities along the former flowline, an abandoned concrete vessel (PIT) was discovered, and soil sample PIT-N01@4' (highest degree of impacts) was submitted for laboratory analysis of the full Table 915-1 analytical suite. Analytical results for sample PIT-N01@4' indicated that soil impacts due to benzene, ethylbenzene, TMB, total petroleum hydrocarbons (TPH), PAHs, and selenium (Se) were present at the former PIT location. Excavation and site assessment activities to address remaining soil impacts associated with the PIT are currently ongoing, and will be summarized in a forthcoming Form 27-Supplemental update. Soil and groundwater sample location and field screening data are presented in Table 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 PIT excavation area, at depths of approximately 5 and 4 feet bgs, respectively. Based on the results for initial characterization soil sample PIT-N01@4' (highest degree of impacts), subsequent confirmation soil samples will continue to be submitted for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), TMB, and TPH - gasoline range organics (GRO: C6-C10) by United States Environmental Protection Agency (USEPA) Method 8260D, TPH - diesel and oil range organics (DRO: C10-C28 & ORO: C28-C40) by USEPA Method 8015D, PAHs by USEPA Method 8270D SIM, and Se by USEPA Method 6020B. The wellhead excavation extent and associated soil sample locations are illustrated on Figure 1. The current PIT excavation extent and associated soil sample locations are illustrated on Figure 2. Soil analytical results are summarized in Tables 2 through 5. The laboratory analytical reports are provided as Attachment A.

## Proposed Groundwater Sampling

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

Groundwater was encountered in the wellhead cut and cap excavation area, flowline removal potholes, and PIT excavation area, at depths ranging from approximately 3 to 5 feet bgs. On September 8, 2021 through January 13, 2022, three groundwater samples (GW01, FL-GW01, and PIT-GW01) were collected from the excavation areas and submitted for laboratory analysis of BTEX, naphthalene, 1,2,4- and 1,3,5-TMB by USEPA Method 8260D. Analytical results indicated that constituent concentrations in groundwater samples GW01 and FL-GW01 were in compliance with COGCC Table 915-1 standards. Analytical results indicate that the 1,2,4-TMB concentration in sample PIT-GW01 exceeded the COGCC Table 915-1 standard. Groundwater analytical data is presented in Table 6, and the groundwater sample locations are illustrated on Figures 1 and 2. The laboratory analytical reports are provided in Attachment A.

## 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 and November 19, 2021, visual inspection and field screening of soils was conducted at 3 sidewall locations within the wellhead excavation area, 4 locations at the ground surface adjacent to the excavation, and 4 pothole locations during flowline removal. Based on the inspection and screening results, hydrocarbon-impacted soil was not observed at the soil screening locations. As such, no soil samples were submitted for laboratory analysis from these locations 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 presented in Tables 2 through 5. Groundwater analytical results are presented in Table 6. The soil and groundwater sample and field screening locations are illustrated on Figures 1 and 2. The laboratory analytical report is provided as Attachment A. The field notes and photographic log are provided as Attachment B.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 18

Number of soil samples exceeding 915-1 10

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

Approximate areal extent (square feet) 3100

### NA / ND

-- Highest concentration of TPH (mg/kg) 4679

-- Highest concentration of SAR 11.8

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 5

### Groundwater

Number of groundwater samples collected 3

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 4'

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 1

-- Highest concentration of Benzene (µg/l) 3.17

ND Highest concentration of Toluene (µg/l)

-- Highest concentration of Ethylbenzene (µg/l) 22

-- Highest concentration of Xylene (µg/l) 94.8

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?

Sixteen (16) background soil samples were collected from the native material adjacent to the wellhead cut and cap and the PIT excavation areas, at depths of approximately 2 feet and 4 feet bgs. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and/or Table 915-1 metals using standard methods appropriate for detecting the target analytes in Table 915-1.

☐ 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 and groundwater remain at the site. Excavation and site assessment activities to address remaining soil impacts associated with the PIT are currently ongoing and will be summarized in a forthcoming Form 27-Supplemental update. Following completion of impacted soil excavation activities, groundwater monitoring wells will be installed at the site to fully define the nature and extent of the remaining groundwater impacts. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of Table 915-1 constituents.

## 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.

Laboratory results indicate that constituent concentrations in the soil and groundwater samples collected from the wellhead cut and cap excavation area were in compliance with COGCC Table 915-1 standards. As a result, no soils were removed from this area, and the cut and cap excavation was backfilled and contoured to match pre-existing site conditions. Excavation and site assessment activities to address remaining soil impacts associated with the PIT location are currently ongoing. To date, approximately 310 cubic yards of impacted material have been excavated and transported to the Front Range Landfill in Erie, Colorado for disposal; approximately 120 cubic yards of impacted material have been excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal; approximately 830 cubic yards of impacted material have been excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Excavation activities are ongoing and impacted soil will continue to be transported off-site for disposal at a licensed disposal facility. Confirmation soil samples will be collected from the final lateral and vertical extents of the excavation area. Approximately 2,755 barrels of groundwater have been removed from the excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling.

### 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 results indicate that constituent concentrations in the soil and groundwater samples collected from the wellhead cut and cap excavation area were in compliance with COGCC Table 915-1 standards. Based on the analytical and soil screening data presented herein, assessment is complete at the West Farm 2-14A wellhead and no further activities are required in this area. Impacted soil and groundwater remain at the site, associated with the former PIT location. Excavation and site assessment activities to address remaining soil impacts associated with the PIT are currently ongoing and will be summarized in a forthcoming Form 27-Supplemental update. Following completion of impacted soil excavation activities, temporary groundwater monitoring wells will be installed at the site to fully define the nature and extent of the remaining groundwater impacts. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of Table 915-1 constituents until concentrations remain in compliance with COGCC standards. Estimated time to attain NFA is TBD based on the groundwater concentrations, the extent of impacted soil and groundwater, and the efficacy of the selected remedial technologies.

### Soil Remediation Summary

☐ In Situ

☒ Ex Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

Yes \_\_\_\_\_ Excavate and offsite disposal

\_\_\_\_\_ Chemical oxidation

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 1260

\_\_\_\_\_ Air sparge / Soil vapor extraction

\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_ 149007

\_\_\_\_\_ Natural Attenuation

No \_\_\_\_\_ Excavate and onsite remediation

\_\_\_\_\_ Other \_\_\_\_\_

\_\_\_\_\_ 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

**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.

Following completion of impacted soil excavation activities, temporary groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining groundwater impacts. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of Table 915-1 constituents. 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:**☒ 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&amp;P waste generated as part of this remediation? Yes

Describe beneficial use, if any, of E&amp;P Waste derived from this remediation project:

Approximately 830 cubic yards of impacted material have been excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 2,755 barrels of groundwater have been transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling.

Volume of E&amp;P Waste (solid) in cubic yards 1260

E&amp;P waste (solid) description Impacted soil

COGCC Disposal Facility ID #, if applicable: 149007

Non-COGCC Disposal Facility: Buffalo Ridge Landfill - Keenesburg, Colorado; Front Range Landfill - Erie, Colorado

Volume of E&amp;P Waste (liquid) in barrels 2755

E&amp;P waste (liquid) description 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? 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?

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. 11/22/2021

Actual Spill or Release date, or date of discovery. 11/19/2021

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 09/08/2021

Proposed site investigation commencement. 09/08/2021

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

### **REMEDIAL ACTION DATES**

Proposed start date of Remediation. 11/19/2021

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:

**OPERATOR COMMENT**

Based on the analytical and soil screening data provided herein, assessment is complete at the West Farm 2-14A ellhead location and no further activities are required in this area. Impacted soil and groundwater remain at the site, associated with the former PIT location. Excavation and site assessment activities to address remaining soil impacts associated with the PIT location are currently ongoing. Form 27-Supplemental updates will continue to be submitted to the COGCC on a quarterly basis until the extent of remaining 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: 19714

**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**

402957579	PHOTO DOCUMENTATION
402957580	ANALYTICAL RESULTS
402957581	SOIL SAMPLE LOCATION MAP
402957582	SOIL SAMPLE LOCATION MAP
402957583	ANALYTICAL RESULTS

Total Attach: 5 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)