

# State of Colorado Oil and Gas Conservation Commission

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403358968

Receive Date:

03/31/2023

Report taken by:

Taylor Robinson

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

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 23522 Initial Form 27 Document #: 403070659

#### 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: <u>LOCATION</u>	Facility ID: <u>332556</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>PSC-63N67W 11SWSE</u>		Latitude: <u>40.233850</u>	Longitude: <u>-104.856680</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>SWSE</u>	Sec: <u>11</u>	Twp: <u>3N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>
Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>481901</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>PSC-63N67W Separator Release</u>		Latitude: <u>40.236063</u>	Longitude: <u>-104.855308</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>SWSE</u>	Sec: <u>11</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 CH

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**

The nearest domestic water well is located approximately 625 feet south of the release location.  
Surface water is located approximately 625 feet northwest of the release location.  
A wetland is located approximately 1,050 feet south of the release location.

## **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 sampling / laboratory analysis
Yes	SOILS	106' (N-S) x 64' (E-W) x 12' bgs	Excavation / soil sampling / 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 February 23, 2022, an estimated 0.23 barrels of condensate were released to the ground surface at the PSC-63N67W (PSC 15-11) Production Facility due to a broken sight glass on the separator. During soil cleanup activities on March 18, 2022, the release became State Reportable due to observed soil impacts in contact with groundwater. The COGCC issued Spill/Release Point 481901 for this release (COGCC Document No. 402988996). On March 21, 2022, soil samples B01@6' and W01@5' were collected from the initial excavation area during ongoing cleanup activities. Based on the field screening results and photoionization detector (PID) readings, these samples were selected for waste characterization purposes and were submitted for laboratory analysis of the full Table 915-1 analytical suite using standard COGCC-approved methods. Analytical results for the waste characterization samples indicated that soil impacts were present due to benzene, toluene, ethylbenzene, total xylenes (BTEX), total petroleum hydrocarbons (TPH), 1,2,4- and 1,3,5-trimethylbenzene (TMB), polycyclic aromatic hydrocarbons (PAHs), arsenic (As), and selenium (Se). The remaining analytical results for samples B01@6' and W01@5' were in compliance with COGCC standards and/or within the range of site-specific background levels. Groundwater was encountered in the excavation area at approximately 6 feet below ground surface (bgs). Soil and groundwater sample location and field screening data are presented in Table 1. The soil and groundwater sample 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 ):

On February 23 through December 21, 2022, excavation activities were conducted to address remaining soil impacts, and 29 soil samples were collected from the base and sidewalls of the final excavation extents, at depths ranging from approximately 5 to 12 feet bgs. Based on the analytical results for waste characterization samples B01@6' and W01@5, the confirmation soil samples were submitted for laboratory analysis of BTEX, 1,2,4- and 1,3,5-TMB, TPH-GRO (C6-C10), DRO (C10-C28), ORO (C28-C40), PAHs, As, and Se, as approved by the COGCC in the Initial Form 27 (COGCC Document No. 403070659). Analytical results indicate that constituent concentrations in the soil samples collected from the final excavation extents were in compliance with COGCC Table 915-1 standards and/or within the range of site-specific background levels. Soil analytical results are presented 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 was encountered in the excavation area at approximately 6 feet bgs. On March 21, 2022, a groundwater sample (GW01) was collected from the excavation area and submitted for laboratory analysis of BTEX, naphthalene, 1,2,4- and 1,3,5-TMB by USEPA Method 8260D. Analytical results indicate that the benzene, toluene, total xylenes, naphthalene, 1,2,4- and 1,3,5-TMB concentrations in groundwater sample GW01 exceeded the COGCC Table 915-1 standards. The groundwater sample location is illustrated on Figure 1. Groundwater analytical results are summarized in Table 6.

### 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 ):

Soil and groundwater sample location and field screening data are presented in Table 1. Soil analytical results are summarized in Tables 2 through 5. Groundwater analytical results are summarized in Table 6. The final excavation extent and associated soil and groundwater sample locations are illustrated on Figure 1. The laboratory analytical report for the soil samples collected since the previous Form 27-Supplemental update was submitted on December 14, 2022 (COGCC Document No. 403256889), 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 47

Number of soil samples exceeding 915-1 21

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

Approximate areal extent (square feet) 6300

### NA / ND

-- Highest concentration of TPH (mg/kg) 6641

-- Highest concentration of SAR 0.781

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 12

### Groundwater

Number of groundwater samples collected 1

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 6

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 1

-- Highest concentration of Benzene (µg/l) 1160

-- Highest concentration of Toluene (µg/l) 5400

-- Highest concentration of Ethylbenzene (µg/l) 491

-- Highest concentration of Xylene (µg/l) 5930

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 BG01@4' - BG04@4', BG05@5', BH05@8', and BH06@4' - BG08@4' were collected from native material adjacent to the release area. Additionally, 16 area-specific background samples from the nearby West Farm 2-14A and PSC 39,43-11 locations were also used for comparison to the inorganic soil results for this site. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and/or select 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 presented in Tables 4 and 5. The additional area-specific background analytical results are provided in Attachment A.

☐ 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 groundwater impacts. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of COGCC 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.

On February 23 through December 21, 2022, approximately 162 cubic yards of impacted soil slurry were removed from the excavation area via vacuum truck hydro-excavation activities and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling; approximately 3,120 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal; approximately 1,160 cubic yards of impacted material were excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Approximately 20,226 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 recycling. Laboratory results indicate that constituent concentrations in the confirmation soil samples collected from the final excavation extents were in compliance with COGCC Table 915-1 standards and/or within the range of site-specific background levels. The excavation area 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 results indicate that constituent concentrations in the confirmation soil samples collected from the final excavation extents were in compliance with COGCC Table 915-1 standards and/or within the range of site-specific background levels. Prior to backfilling, approximately 220 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 is provided as Attachment C. Groundwater monitoring wells will be installed at the former wellhead location 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. 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

<input type="checkbox"/> In Situ	<input checked="" type="checkbox"/> Ex Situ
_____ Bioremediation ( or enhanced bioremediation )	Yes _____ Excavate and offsite disposal
_____ Chemical oxidation	_____ If Yes: Estimated Volume (Cubic Yards) _____ 4442
_____ Air sparge / Soil vapor extraction	_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____ 434766
_____ 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
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.

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

### 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 downward 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: \$ 75000

### 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 162 cubic yards of impacted soil slurry were removed from the excavation area via vacuum truck hydro-excavation activities and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 20,226 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 recycling.

Volume of E&P Waste (solid) in cubic yards 4442

E&P waste (solid) description Impacted soil

COGCC Disposal Facility ID #, if applicable: 434766

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

Volume of E&P Waste (liquid) in barrels 20226

E&P waste (liquid) description 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? 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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

Does Groundwater meet Table 915-1 standards? No

Is additional groundwater monitoring to be conducted? Yes

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 restored to its pre-release grade and Kerr-McGee's production infrastructure will be replaced.

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 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. 03/21/2022

Actual Spill or Release date, or date of discovery. 03/18/2022

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/23/2022

Proposed site investigation commencement. 03/21/2022

Proposed completion of site investigation. 06/30/2023

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/23/2022

Proposed date of completion of Remediation. 12/31/2028

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**

Form 27-Supplemental updates will be submitted to the COGCC on a quarterly basis until the extent of groundwater impacts has been fully delineated. The project implementation summary is provided as Attachment D.

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

Signed: Gregory Hamilton

Title: Senior Env. Consultant

Submit Date: 03/31/2023

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: Taylor Robinson

Date: 05/04/2023

Remediation Project Number: 23522

**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**

403358968	FORM 27-SUPPLEMENTAL-SUBMITTED
403358975	ANALYTICAL RESULTS
403358976	PHOTO DOCUMENTATION
403358977	OTHER
403358978	SOIL SAMPLE LOCATION MAP
403358979	ANALYTICAL RESULTS
403358980	IMPLEMENTATION SCHEDULE

Total Attach: 7 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)