

State of Colorado  
Oil and Gas Conservation Commission

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Document Number:  
402809310

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	Phone Numbers
Address: P O BOX 173779		
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Phillip Hamlin	Email: Phillip_Hamlin@oxy.com	
		Phone: (970) 336-3500
		Mobile: (970) 515-1161

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 15868 Initial Form 27 Document #: 402471008

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: LOCATION Facility ID: 318080 API #: \_\_\_\_\_ County Name: WELD

Facility Name: ADDIE M. KING GAS UNIT-61N66W 4SWSW Latitude: 40.076140 Longitude: -104.788210

\*\* correct Lat/Long if needed: Latitude: 40.076460 Longitude: -104.787821

QtrQtr: SWSW Sec: 4 Twp: 1N Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 478864 API #: \_\_\_\_\_ County Name: WELD

Facility Name: SPILL/RELEASE POINT Latitude: 40.076460 Longitude: -104.787821

\*\* correct Lat/Long if needed: Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

QtrQtr: SWSW Sec: 4 Twp: 1N Range: 66W Meridian: 6 Sensitive Area? Yes

## **SITE CONDITIONS**

General soil type - USCS Classifications CL

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 200 feet northeast of the release location. Surface water is located approximately 1,250 feet north-northeast of the release location. Multiple buildings are located within ¼ mile of the release location.

# SITE INVESTIGATION PLAN

## TYPE OF WASTE:

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste      | <input type="checkbox"/> Other E&P Waste             | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids             | _____                                  |
| <input checked="" type="checkbox"/> Oil            | <input type="checkbox"/> Tank Bottoms                |  |
| <input checked="" type="checkbox"/> Condensate     | <input type="checkbox"/> Pigging Waste               |  |
| <input type="checkbox"/> Drilling Fluids           | <input type="checkbox"/> Rig Wash                    |  |
| <input type="checkbox"/> Drill Cuttings            | <input type="checkbox"/> Spent Filters               |  |
|  | <input type="checkbox"/> Pit Bottoms                 |  |
|  | <input type="checkbox"/> Other (as described by EPA) | _____                                  |

## DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	See attached data	Groundwater sampling and laboratory analysis
Yes	SOILS	234' (E-W) x 128' (N-S) x 12' 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 December 7, 2020, historical impacts were discovered during abandonment activities at the King Addie M GU 1 production facility, and excavation activities were initiated. Groundwater was encountered in the excavation area at approximately 10.5 feet below ground surface (bgs). The COGCC issued Spill/Release Point ID 478864 for this release.

## 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 were collected as described in a previous Form 27-Supplemental update (COGCC Document No. 402606935). 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. Based on the date of discovery and initiation of excavation activities (December 7 2020), the COGCC Table 910-1 soil standards have been applied to the soil analytical results at this location.

### Proposed Groundwater Sampling

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

On July 12 and 13, 2021, eleven (11) temporary groundwater monitoring wells (BH01 - BH11) were installed to further assess the extent of potentially remaining groundwater impacts. Quarterly groundwater monitoring was initiated on July 26, 2020, and is ongoing. Groundwater analytical data is presented in Table 1, and the temporary groundwater monitoring well locations are illustrated on Figure 1. The laboratory analytical report for the initial Third Quarter 2021 groundwater monitoring event is provided as 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 ):

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 136

-- Highest concentration of TPH (mg/kg) 8474

Number of soil samples exceeding 915-1 52

-- Highest concentration of SAR 12.25

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

BTEX > 915-1 Yes

Approximate areal extent (square feet) 20200

Vertical Extent > 915-1 (in feet) 12

**Groundwater**

Number of groundwater samples collected 14

-- Highest concentration of Benzene (µg/l) 426

Was extent of groundwater contaminated delineated? Yes

ND Highest concentration of Toluene (µg/l)

Depth to groundwater (below ground surface, in feet) 8'

-- Highest concentration of Ethylbenzene (µg/l) 956

Number of groundwater monitoring wells installed 11

-- Highest concentration of Xylene (µg/l) 16200

Number of groundwater samples exceeding 915-1 5

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?

Soil exceeding COGCC standards extended laterally beyond the lease boundary. Laboratory analytical results indicate that impacted soils in the excavation area have been remediated to be in full compliance with the COGCC Table 910-1 standards.

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?

The 11 temporary groundwater monitoring wells (BH01 - BH11) will continue to 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.

Between December 7, 2020 and February 3, 2021, a total of approximately 7,077 cubic yards of impacted material were removed from the site. Approximately 5,950 cubic yards of impacted material were excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Approximately 1,100 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado. Approximately 27 cubic yards of impacted material were hydro-excavated and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado. Approximately 1,635 barrels of impacted groundwater were removed from the excavation via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado.

**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 soils in the excavation area have been remediated to be in full compliance with the COGCC Table 910-1 standards. Prior to backfilling, approximately 990 pounds of OxPure® activated carbon were added to the excavation to mitigate potentially remaining hydrocarbon impacts to groundwater. Quarterly groundwater monitoring is ongoing and will be continued until concentrations remain in compliance with the COGCC Table 915-1 standards. Additional remedial activities may be evaluated, as necessary, to address potentially remaining groundwater impacts. 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

Ex Situ

<input type="checkbox"/> Bioremediation ( or enhanced bioremediation )	<input type="checkbox"/> Yes	Excavate and offsite disposal	
<input type="checkbox"/> Chemical oxidation		If Yes: Estimated Volume (Cubic Yards)	<u>7077</u>
<input type="checkbox"/> Air sparge / Soil vapor extraction		Name of Licensed Disposal Facility or COGCC Facility ID #	<u>149007</u>
<input type="checkbox"/> Natural Attenuation	<input type="checkbox"/>	Excavate and onsite remediation	
<input type="checkbox"/> Other	<input type="checkbox"/>	Land Treatment	
	<input type="checkbox"/>	Bioremediation (or enhanced bioremediation)	
	<input type="checkbox"/>	Chemical oxidation	
	<input type="checkbox"/>	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.

On July 12 and 13, 2021, 11 temporary groundwater monitoring wells (BH01 - BH11) were installed to further assess the extent of potentially remaining groundwater impacts. The 11 temporary monitoring wells will continue to be sampled on a quarterly basis and submitted for laboratory analysis of Table 915-1 constituents. Upgradient and compliant groundwater monitoring well BH01 was selected from the Third Quarter 2021 monitoring event as a background location for comparison to inorganic groundwater standards in Table 915-1. Based on a comparison to site-specific background concentrations, the sulfate concentration in monitoring well BH06 was above the Table 915 -1 standards for inorganic constituents during the Third Quarter 2021 monitoring event. Kerr-McGee will continue to evaluate points-of-compliance (POC) for Table 915-1 standards on a quarterly basis, based on the site-specific local background concentrations. The temporary monitoring well locations are illustrated on Figure 1, and a potentiometric surface contour map for the Third Quarter 2021 is presented as Figure 2. Well completion logs for the temporary monitoring wells are provided as Attachment B.

# 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 \_\_\_\_\_

## 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 1,100 cubic yards of hydrocarbon-impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling. Approximately 27 cubic yards of hydrocarbon-impacted soil slurry were transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado, for recycling. Approximately 1,635 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 7077  
E&P waste (solid) description Hydrocarbon-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 1635  
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? 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? 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 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 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. 12/14/2020

Actual Spill or Release date, or date of discovery. 12/07/2020

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/07/2020

Proposed site investigation commencement. 12/07/2020

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

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/07/2020

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 date of discovery and initiation of excavation activities (December 7, 2020), the COGCC Table 910-1 soil standards have been applied to the soil analytical results at this location. Based on the Third Quarter 2021 groundwater monitoring results, Kerr-McGee will continue to provide annual Form 27-Supplemental updates for this site. The Project Implementation Summary is provided as Attachment C.

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: Phillip\_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: 15868 \_\_\_\_\_

**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**

402809661	LOGS
402809662	SITE MAP
402809665	GROUND WATER ELEVATION MAP
402809667	ANALYTICAL RESULTS
402809668	IMPLEMENTATION SCHEDULE
402809669	ANALYTICAL RESULTS

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)