

# State of Colorado Oil and Gas Conservation Commission

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Report taken by:

Kari Brown

## 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 Phone: (970) 515-1698 Mobile: ( )
Address: P O BOX 173779		
City: DENVER	State: CO Zip: 80217-3779	
Contact Person: Greg Hamilton	Email: Gregory_Hamilton@oxy.com	

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 17400 Initial Form 27 Document #: 402638226

#### 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

No Multiple Facilities

Facility Type: WELL	Facility ID: _____	API #: 123-16598	County Name: WELD
Facility Name: HSR-SCHMID 2-34		Latitude: 40.273692	Longitude: -104.760928
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWNE	Sec: 34	Twp: 4N	Range: 66W Meridian: 6 Sensitive Area? Yes

#### SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Agriculture

Is domestic water well within 1/4 mile? Yes Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? Yes

**Other Potential Receptors within 1/4 mile**

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# 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	See attached data	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.

This form has been prepared to summarize assessment activities conducted during the plugging and abandonment of the Schmid 2-34 wellhead and the partial removal of the associated flowline. The flowline will be partially removed, and the remaining segment will be abandoned in place. Assessment activities began on April 20, 2021. Soil assessment activities were conducted in accordance with COGCC Rule 911.a.

On April 27, 2021, upon receipt of the laboratory analytical report for samples collected on April 20, 2021, historically impacted soil was discovered in the facility excavation. Laboratory analytical results indicated samples from exceeded the COGCC Table 915-1 allowable levels for 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene. The release was reported to the COGCC in the Form 19 Initial dated April 28, 2021 (Document No. 402672715). The volume of the release is unknown. The impacted soil was excavated.

## 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 ):

Between April 20 and November 10, 2021, soil samples were collected from the separator riser, flowline soil borings, Pothole01 excavation, and the wellhead excavation and field screened for total volatile organic compounds using a photoionization detector (PID). Based on PID readings at the flowline and separator riser, no soil samples were submitted for laboratory analysis. Based on PID readings from Pothole01 and the wellhead excavation, select samples were submitted for analysis. The impacted soil was excavated. Analytical results indicated soil was in full compliance with Table 915-1 standards or within the analytical variability of the background samples at the extents of the two excavations. Therefore, further excavation was not warranted. The wellhead and flowline soil sample locations are depicted on Figures 1 and 2, respectively. The soil sample results and PID readings are summarized in Tables 1 and 2, respectively. The laboratory reports and soil boring logs are attached.

### Proposed Groundwater Sampling

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

On April 22, 2021, one groundwater sample was collected from the wellhead excavation for the full list Table 915-1 analyses. One background groundwater sample (Pothole-GW01) was also collected to assess the natural levels for inorganic analyses. Laboratory analytical results indicated groundwater sample GW01 exceeds the COGCC Table 915-1 allowable levels for Chloride Ion and Sulfate Ion. The groundwater sample analytical results are summarized in Table 3.

### 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 ):

Following cut and cap operations, a soil gas survey was conducted. Five soil vapor points (SVP01 through SVP05) were installed adjacent to the former wellhead location. Field screening was conducted using a GEM 5000 gas meter. No methane was detected adjacent to the wellhead, and the soil vapor points were subsequently abandoned. Soil vapor point assessment details are summarized in the Form 27 Supplemental submitted on August 5, 2021 (Document No. 402766766).

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 25

Number of soil samples exceeding 915-1 21

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

Approximate areal extent (square feet) 1073

### NA / ND

-- Highest concentration of TPH (mg/kg) 490.7

-- Highest concentration of SAR 8.61

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 20

### Groundwater

Number of groundwater samples collected 1

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 9'

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 1

ND Highest concentration of Benzene (µg/l)

ND Highest concentration of Toluene (µg/l)

ND Highest concentration of Ethylbenzene (µg/l)

ND Highest concentration of Xylene (µg/l)

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?

Nine background soil samples (BG01@6', BG02@9', Native-BG03@12', Native-BG04@10', Native-BG04@19', Native-BG05@10', Native-BG05@19', Native-BG06@10', and Native-BG06@19') were collected for laboratory analysis of EC, SAR, pH, boron, and metals. Laboratory analytical results indicate arsenic and barium are naturally high in the native soil.

One background groundwater sample (Pothole01-GW01) was collected to assess the natural levels for inorganic analyses. Laboratory analytical results indicate sulfate is naturally high in groundwater.

☐ 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 residual dissolved-phase groundwater impact.

## 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.

Approximately 1,030 cubic yards of petroleum hydrocarbon impacted soil were transported to Buffalo Ridge Landfill in Keenesburg, Colorado, for disposal. Approximately three hydro-vacuum loads of impacted soil and groundwater slurry and approximately 2,718 barrels of impacted groundwater were removed from the excavation and transported to the Aggregate Recycle Facility in Weld County, Colorado, for recycling. Disposal records are kept on file and available upon request.

## REMEDIAL ACTION 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.

The impacted soil has been excavated and transported to a licensed disposal facility.

## **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) \_\_\_\_\_ 1030

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

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

Yes \_\_\_\_\_ 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 residual dissolved-phase groundwater impact. The monitoring wells will be surveyed to determine the groundwater flow direction. Groundwater monitoring activities will be conducted on a quarterly schedule and samples will be submitted for full list Table 915-1 analyses.

## 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 three hydro-vacuum loads of impacted soil and groundwater slurry and approximately 2,718 barrels of impacted groundwater were removed from the excavation and transported to the Aggregate Recycle Facility in Weld County, Colorado, for recycling.

Volume of E&P Waste (solid) in cubic yards 1030

E&P waste (solid) description Petroleum hydrocarbon impacted soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Buffalo Ridge Landfill in Keenesburg, Colorado

Volume of E&P Waste (liquid) in barrels 2718

E&P waste (liquid) description Petroleum 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? 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 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. 11/18/2020

Actual Spill or Release date, or date of discovery. 04/27/2021

## SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/20/2021

Proposed site investigation commencement. 04/20/2021

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

## REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/20/2021

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**

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

Signed: ` Greg Hamilton

Title: Environmental Consultant

Submit Date: ` 02/17/2022

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: Kari Brown

Date: 03/04/2022

Remediation Project Number: 17400

**Condition of Approval****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**

402938579	FORM 27-SUPPLEMENTAL-SUBMITTED
402938649	PHOTO DOCUMENTATION
402951472	ANALYTICAL RESULTS
402951474	LOGS
402951563	SOIL SAMPLE LOCATION MAP
402951600	SOIL SAMPLE LOCATION MAP

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)