

State of Colorado  
Oil and Gas Conservation Commission

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Receive Date:

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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: Erik Mickelson	Email: Erik_Mickelson@oxy.com	
		Phone: (720) 929-4306
		Mobile: ( )

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 18298 Initial Form 27 Document #: 402697754

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 #: 123-29115	County Name: WELD
Facility Name: STATE 30-16	Latitude: 40.054299	Longitude: -105.014555	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWNW	Sec: 16	Twp: 1N	Range: 68W 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? No 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 Community Ditch is located approximately 195 feet east of the site.

# SITE INVESTIGATION PLAN

## **TYPE OF WASTE:**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> E&P Waste       | <input checked="" type="checkbox"/> Other E&P Waste             | <input type="checkbox"/> Non-E&P Waste |
| <input type="checkbox"/> Produced Water  | <input type="checkbox"/> Workover Fluids                        | _____                                  |
| <input type="checkbox"/> Oil             | <input type="checkbox"/> Tank Bottoms                           |  |
| <input 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 checked="" type="checkbox"/> Other (as described by EPA) | Thermogenic gas<br>_____               |

## **DESCRIPTION OF IMPACT**

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	TBD	Soil Vapor 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.

During plugging and abandonment activities at the State 30-16 wellhead, five shallow soil vapor points (SVPs) were installed in the vicinity of the wellhead to assess the subsurface for vapor contamination. On August 25, 2021, stray thermogenic gas was identified in the samples collected from the soil vapor points installed in the vicinity of the wellhead, as reported to the COGCC in the vicinity of the wellhead, as reported to the COGCC in the Form 19 Initial dated August 26, 2021 (Document No. 402792735). The volume of the methane release is unknown.

As requested by the COGCC in the Form 27 Supplemental approval dated April 15, 2022, all monitoring well and soil vapor extraction (SVE) well boring logs, historical field measurements, and historical laboratory analytical results are provided as attachments. The locations of all former and current monitoring wells, SVE wells, and SVPs are depicted on Figure 1 and Figure 2.

## **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 ):

### **Proposed Groundwater Sampling**

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

### **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 6, 2022, eight additional SVPs were installed in vicinity of the State 6-16 wellhead and former SVE well SVE01. On December 9 and December 15, 2022, Ensolium screened and sampled the eight SVPs using IsoTubes™ and an IsoTube™ sampling manifold in conjunction with the pump on a Landtec GEM™5000 (GEM). Samples collected from SVP77-SVP84 were submitted to Isotech Laboratories (Isotech) for gas composition and isotopic analysis. During both field screening events, methane was not detected by the GEM in any of the SVPs.

The soil vapor investigation is ongoing as re-entry work continues at multiple wells on the same pad as the State 30-16. Additional SVPs and SVE wells will be installed after the plugging and abandonment work has been completed.

# SITE INVESTIGATION REPORT

## **SAMPLE SUMMARY**

### **Soil**

Number of soil samples collected 9  
Number of soil samples exceeding 915-1 0  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 0

### **NA / ND**

NA Highest concentration of TPH (mg/kg) \_\_\_\_\_  
NA Highest concentration of SAR \_\_\_\_\_  
BTEX > 915-1 No  
Vertical Extent > 915-1 (in feet) 0

### **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  
0 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?

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 soil vapor investigation is ongoing. Analytical results from the December 9, 2022 sampling event were received on December 28, 2022, indicating detections of trace methane in five of the eight samples ranging from 0.0002% to 0.0019%. Trace thermogenic gases in the C2 to C5 range were detected in four samples (SVP78, SVP80, SVP81, and SVP82).

Analytical results from the December 15, 2022 sampling event were received on January 9, 2023, indicating detections of trace methane in three of the eight samples ranging from 0.0002% to 0.0013%. Trace thermogenic gases in the C2 to C5 range were only detected in the sample collected from SVP80. Previous methane detections during the December 2021 sampling event ranged from 0.0002% to 32.95%.

The fourth quarter 2022 tabulated field data and laboratory analytical results are included as Tables 1A and 2A, respectively. Historical field data and laboratory analytical results are included as Tables 1B and 2B, respectively. The laboratory reports from the fourth quarter 2022 sampling events are attached.

## **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 December 6, 2022, eight additional SVPs were installed in vicinity of the State 6-16 wellhead and former SVE well SVE01. On December 9 and December 15, 2022, Ensolum screened and sampled the eight SVPs using IsoTubes™ and an IsoTube™ sampling manifold in conjunction with the pump on a GEM. Samples collected from SVP77-SVP84 were submitted to Isotech for gas composition and isotopic analysis. During both field screening events, methane was not detected by the GEM in any of the SVPs.

The soil vapor investigation is ongoing as re-entry work continues at multiple wells on the same pad as the State 30-16. Additional SVPs and SVE wells will be installed after the plugging and abandonment work has been completed.

### **REMIATION 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 soil vapor investigation is ongoing. Analytical results from the December 9, 2022 sampling event were received on December 28, 2022, indicating detections of trace methane in five of the eight samples ranging from 0.0002% to 0.0019%. Trace thermogenic gases in the C2 to C5 range were detected in four samples (SVP78, SVP80, SVP81, and SVP82).

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The fourth quarter 2022 tabulated field data and laboratory analytical results are included as Tables 1A and 2A, respectively. Historical field data and laboratory analytical results are included as Tables 1B and 2B, respectively. The laboratory reports from the fourth quarter 2022 sampling events are attached.

**Soil Remediation Summary**

In Situ

Ex Situ

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

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

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

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

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

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

\_\_\_\_\_ 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.

# REMEDATION 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 Soil Vapor Assessment 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.

Kerr-McGee Oil & Gas Onshore LP (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? No

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

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

E&P waste (solid) description \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: \_\_\_\_\_

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_

E&P waste (liquid) description \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: \_\_\_\_\_

# REMEDATION COMPLETION REPORT

## REMEDATION 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? \_\_\_\_\_

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. 08/26/2021

Actual Spill or Release date, or date of discovery. 08/25/2021

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/17/2021

Proposed site investigation commencement. 08/17/2021

Proposed completion of site investigation. 03/31/2023

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/01/2023

Proposed date of completion of Remediation. 04/01/2024

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**

Kerr-McGee Oil & Gas Onshore, LP has been conducting continuous air monitoring at the subject location since August of 2021. In that time, there's been no instance where levels approached the Health Guidance Value. The associated air monitoring reports can be viewed at the following link: <https://www.oxycoloradostakeholder.com/project-updates>

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

Signed: Erik Mickelson \_\_\_\_\_

Title: Environmental Lead \_\_\_\_\_

Submit Date: \_\_\_\_\_

Email: Erik\_Mickelson@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: 18298

**COA Type****Description**

<u>COA Type</u>	<u>Description</u>
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**

403334148	ANALYTICAL RESULTS
403334151	LOGS
403334153	LOGS
403334155	SITE MAP
403335110	SITE INVESTIGATION REPORT
403335278	SITE MAP

Total Attach: 6 Files

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

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)