

# State of Colorado Oil and Gas Conservation Commission

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Report taken by:

PETER GINTAUTAS

## 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.

Refer to Rules 340, 905, 906, 907, 908, 909, and 910

### OPERATOR INFORMATION

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

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 13729 Initial Form 27 Document #: 402034955

#### PURPOSE INFORMATION

- |  |  |
|--|--|
| <input type="checkbox"/> 901.e. Sensitive Area Determination                                       | <input checked="" type="checkbox"/> 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water        |
| <input checked="" type="checkbox"/> 909.c.(1), Rule 905: Pit or PW vessel closure                  | <input type="checkbox"/> Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b. |
| <input checked="" type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation                 | <input type="checkbox"/> Rule 909.e.(2)B.: Closure of remediation project                                  |
| <input type="checkbox"/> 909.c.(3), Rule 907.e.: Land treatment of oily waste                      | <input type="checkbox"/> Rule 906.c.: Director request   |
| <input type="checkbox"/> 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure | <input type="checkbox"/> Other _____   |

#### SITE INFORMATION

Y Multiple Facilities ( in accordance with Rule 909.c. )

Facility Type: <u>LOCATION</u>	Facility ID: <u>450468</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>DANIEL V 11-1,9,10,15 TANK BATTERY</u>		Latitude: <u>40.145394</u>	Longitude: <u>-104.850899</u>
** correct Lat/Long if needed: Latitude: <u>40.145455</u>		Longitude: <u>-104.850820</u>	
QtrQtr: <u>SESE</u>	Sec: <u>11</u>	Twp: <u>2N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>
Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>463424</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Daniel V 11-15</u>		Latitude: <u>40.145452</u>	Longitude: <u>-104.850833</u>
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SESE</u>	Sec: <u>11</u>	Twp: <u>2N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

#### SITE CONDITIONS

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

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

Domestic water wells approximately 400 feet (ft) south (S), 1120 ft S, 640 ft southeast (SE), 860 ft SE, 640 ft southwest (SW), 1140 ft SW, 1180 ft west (W), 900 ft W, and 820 ft northwest (NW). Geothermal water well approximately 1120 ft SW, irrigation water well approximately 940 ft northeast (NE), and commercial water well approximately 1200 ft NE. Livestock approximately 1060 ft S, 160 ft east (E), and 320 ft north (N). Occupied structures approximately 500 ft E, 640 ft SE, 980 ft SE, 1100 ft S, 330 ft S, 1010 ft SW, 1100 ft SW, and 1200 ft NE. Lupton Bottom Ditch 135 ft E, and wetlands approximately 1160 ft N.

## 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	To be determined	Groundwater Samples/Laboratory Analytical Results
Yes	SOILS	59' (N-S) x 60' (E-W) x 14' bgs	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.

On March 19, 2019, historical petroleum hydrocarbon impacts were discovered during site decommissioning activities associated with the closure of a partially buried produced water vessel (PWV) at the Daniel V 11-15 production facility. The volume of the release is unknown. A Topographic Site Location Map showing the geographic setting of the release is provided as Figure 1. The general site layout and extent of the excavation is provided as 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 ):

Between March 19, 2019 and January 14, 2020, following removal of the PWV, 16 soil samples were collected from the sidewalls and base of the excavation. The base soil samples were submitted for laboratory analysis of BTEX, naphthalene, and total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) by United States Environmental Protection Agency (USEPA) Method 8260C, TPH-diesel range organics (DRO) and oil range organics (ORO) by USEPA Method 8015C, pH by USEPA Method 9045D, specific conductance (EC) by USEPA Method 9050A, and sodium adsorption ratio (SAR) by USDA Agricultural Handbook 60 Method 20B. The sidewall soil samples were submitted for laboratory analysis of BTEX, naphthalene, and TPH. The laboratory analytical results for the sidewall and base samples are in full compliance with COGCC Table 910-1 allowable levels at the final extent of the excavation. Soil analytical data is presented in Table 1. The soil sample locations are provided in Figure 2.

#### Proposed Groundwater Sampling

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

On September 19, 2019, one groundwater sample (GW01) was collected from the excavation and submitted to Origins Laboratory in Denver, Colorado, for analysis of BTEX by USEPA 8260. The laboratory analytical results indicate that sample GW01 exceeded the COGCC Table 910-1 allowable levels for benzene at 165 µg/L. On January 10, 2020, following the removal of impacted groundwater, an additional groundwater sample (GW02) was collected from the excavation and submitted to Origins Laboratory in Denver, CO for analysis of BTEX by USEPA 8260. The laboratory analytical results indicate that sample GW02 exceeded the COGCC Table 910-1 allowable levels for benzene at 164 µg/L and total xylenes at 1420 µg/L. Groundwater analytical results are summarized in Table 2.

#### 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

Number of soil samples collected 16  
Number of soil samples exceeding 910-1 4  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 3540

### NA / ND

-- Highest concentration of TPH (mg/kg) 3020  
-- Highest concentration of SAR 3.79  
BTEX > 910-1 Yes  
Vertical Extent > 910-1 (in feet) 14

### Groundwater

Number of groundwater samples collected 2  
Was extent of groundwater contaminated delineated? No  
Depth to groundwater (below ground surface, in feet) 11'  
Number of groundwater monitoring wells installed 0  
Number of groundwater samples exceeding 910-1 2

-- Highest concentration of Benzene (µg/l) 165  
-- Highest concentration of Toluene (µg/l) 113  
-- Highest concentration of Ethylbenzene (µg/l) 280  
-- Highest concentration of Xylene (µg/l) 1420  
NA Highest concentration of Methane (mg/l)

### Surface Water

0 Number of surface water samples collected  
Number of surface water samples exceeding 910-1   
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?

Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of any remaining petroleum hydrocarbon impacts. Site access for well installation is currently under consideration.

# 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 1380 cubic yards of soil were taken to the Kerr-McGee Landfarm in Weld County, Colorado. Approximately 5000 barrels of groundwater were removed from the excavation and taken 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.

While backfilling the excavation, 500 pounds of COGAC™, a carbon-based groundwater remediation product, was applied to the clean backfill to mitigate remaining hydrocarbon impacts in groundwater. In order to determine the extent and magnitude of the dissolved-phase hydrocarbon impacts, a minimum of four groundwater monitoring wells will be installed in the source area, crossgradient, and downgradient of the excavation footprint. Groundwater monitoring will be conducted on a quarterly basis and will continue until BTEX concentrations remain below COGCC Table 910-1 groundwater standards for four consecutive quarters.

## 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) 1380  
Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_  
Excavate and onsite remediation  
\_\_\_\_\_ Land Treatment  
\_\_\_\_\_ Bioremediation (or enhanced bioremediation)  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Other \_\_\_\_\_

## Groundwater Remediation Summary

Yes Bioremediation ( or enhanced bioremediation )  
Yes Chemical oxidation  
No Air sparge / Soil vapor extraction  
Yes Natural Attenuation  
Yes Other Chemically Oxygenated  
Granular Activated Carbon  
(COGAC™) application and  
groundwater removal  
\_\_\_\_\_

## 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.

To determine the extent and magnitude of impacts, a minimum of four groundwater monitoring wells will be installed in the source area, cross-gradient, and downgradient of the excavation footprint. Groundwater monitoring will be conducted on a quarterly basis. Collected groundwater samples will be submitted for laboratory analysis of BTEX by USEPA Method 8260. Quarterly groundwater monitoring at the location will continue until BTEX concentrations remain below COGCC Table 910-1 groundwater standards for four consecutive quarters.

## REMEDIATION PROGRESS UPDATE

### PERIODIC REPORTING

**Frequency:** ☒ Quarterly ☐ Semi-Annually ☐ Annually ☐ Other \_\_\_\_\_

**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 1380 cubic yards of petroleum hydrocarbon impacted soil were transported to the Kerr-McGee Landfarm in Weld County, Colorado for recycling. Approximately 5000 barrels of petroleum 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 \_\_\_\_\_ 1380

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

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

Non-COGCC Disposal Facility: Kerr-McGee Landfarm in Weld County, Colorado \_\_\_\_\_

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_ 5000

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 \_\_\_\_\_

Do all soils meet Table 910-1 standards? Yes \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? No \_\_\_\_\_

Are the only residual soil impacts pH, SAR, or EC at depths greater than 3 feet below ground surface? \_\_\_\_\_

Does Groundwater meet Table 910-1 standards? No \_\_\_\_\_

Is additional groundwater monitoring to be conducted? Yes \_\_\_\_\_

## 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 approve the seed mix? \_\_\_\_\_

If NO, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

## IMPLEMENTATION SCHEDULE

### **PRIOR DATES**

Date of Surface Owner notification/consultation, if required. 03/19/2019

Actual Spill or Release date, if known. \_\_\_\_\_

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 03/19/2019

Date of commencement of Site Investigation. 03/19/2019

Date of completion of Site Investigation. \_\_\_\_\_

### **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 03/19/2019

Date of completion of Remediation. \_\_\_\_\_

### **SITE RECLAMATION DATES**

Date of commencement of Reclamation. \_\_\_\_\_

Date of completion of Reclamation. \_\_\_\_\_

**OPERATOR COMMENT**

This form serves as a quarterly update to the remediation activities performed at this site under Remediation Project #13729. Site access for well installation is currently under consideration. Once groundwater monitoring wells are installed onsite, groundwater monitoring will be conducted on a quarterly basis and will continue until BTEX concentrations remain below COGCC Table 910-1 groundwater standards for four consecutive quarters. Subsequent Form 27 Supplemental documents will be submitted on a quarterly basis as a groundwater monitoring report update.

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

Signed: Phil Hamlin

Title: Sr. Env. Rep.

Submit Date: 06/24/2020

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: PETER GINTAUTAS

Date: 06/24/2020

Remediation Project Number: 13729

**COA Type****Description**

	Submit reports of site investigation and progress of remediation including results of sampling and analysis at a minimum on a quarterly basis until further site investigation activities show that adequate points of compliance with respect to groundwater impacts have been established.
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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**

402421213	FORM 27-SUPPLEMENTAL-SUBMITTED
402428670	MAP
402428673	SITE MAP
402428674	ANALYTICAL RESULTS
402428675	ANALYTICAL RESULTS

Total Attach: 5 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)