

State of Colorado  
Oil and Gas Conservation Commission

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Document Number:  
401726374

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.

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

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: Greg Hamilton	Email: Gregory.Hamilton@anadarko.com	
		Phone: (970) 515-1698
		Mobile: ( )

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 11600 Initial Form 27 Document #: 401669313

PURPOSE INFORMATION

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

SITE INFORMATION

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

Facility Type: SPILL OR RELEASE Facility ID: 454973 API #: \_\_\_\_\_ County Name: WELD

Facility Name: Bartz 21-17 Latitude: 40.142150 Longitude: -104.796367

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

QtrQtr: NENE Sec: 17 Twp: 2N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

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

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

Water well approximately 610 feet (ft) north, surface water approximately 55 ft north, occupied building approximately 560 ft north, livestock approximately 750 ft northeast, and groundwater estimated to be approximately 15 ft below ground surface (bgs).

# 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 type="checkbox"/> Produced Water       | <input type="checkbox"/> Workover Fluids             |  |
| <input checked="" 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 type="checkbox"/> Other (as described by EPA) |  |

## DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	115' N-S x 80' E-W x 9' bgs (max)	Soil Samples/Laboratory Analysis
No	SURFACE WATER	See attached data	Surface Water Samples/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.

An inspector discovered a release at the Bartz 21-17 tank battery. The cause of the release was a corrosion hole in an oil storage tank. Approximately 10 barrels of oil were released within the tank battery containment berm, and approximately 1 to 2 gallons were observed as a surface staining north of the tank battery and as sheen on the surface water in the irrigation ditch north of the tank battery. The petroleum hydrocarbon 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 May 7 and July 24, 2018, 7 surface soil samples were collected from the spill release area and 17 soil samples were collected from the excavation base and sidewalls for laboratory analysis of total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX), pH, and specific conductivity (EC). Laboratory analytical results indicated that TPH, BTEX, and EC concentrations and levels were in full compliance with COGCC Table 910-1 allowable levels at the extent of the excavation and spill release area. Laboratory analytical results indicated eleven excavation soil samples exceeded the COGCC Table 910-1 allowable level for pH of 9.00 standard units (su) at levels ranging from 9.07 su to 9.70 su; however, the samples were collected below the root zone (greater than 3 ft bgs); therefore, no further excavation was required. The soil sample locations are depicted on the Excavation Site Map provided as Figure 1. The analytical results are summarized in Table 1.

### 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 ):

On May 7, 2018, four surface water samples (SW01 through SW04) were collected from the surface water in the irrigation ditch and submitted for laboratory analysis of BTEX. Laboratory results indicated surface water samples SW01 through SW04 were in full compliance with COGCC Table 910-1 allowable levels for groundwater. The surface water sample locations are depicted on the Excavation Site Map provided as Figure 1. The soil sample analytical results are summarized in Table 2.

### 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 25

Number of soil samples exceeding 910-1 13

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

Approximate areal extent (square feet) 6910

### NA / ND

-- Highest concentration of TPH (mg/kg) 1747

NA Highest concentration of SAR           

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 9

### 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 910-1           

          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

4 Number of surface water samples collected

0 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?

Approximately 1 to 2 gallons of oil were observed as surface staining north of the tank battery and as sheen on the surface water in the irrigation ditch north of the tank battery.

Were background samples collected as part of this site investigation?

Due to a pH exceedance in surface soil sample SS05, a background soil sample (BG02) was collected and submitted for laboratory analysis of pH. Laboratory analysis indicated the background soil sample was compliant with the COGCC Table 910-1 allowable level for pH; therefore, impacted soil was excavated in the location of soil sample SS05.

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?

# 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 690 cubic yards of impacted soil were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado. Approximately 70 cubic yards of impacted hydro-vacuum slurry were transported to the Aggregate Recycling Facility (ARF) in Weld County, Colorado. The general site layout and excavation footprint are depicted on the Excavation Site Map provided as Figure 1.

## 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.

The excavation was backfilled with clean fill and restored to its pre-release grade.

## Soil Remediation Summary

In Situ

Ex Situ

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

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

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

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 750

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

\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_ 149007

\_\_\_\_\_ 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

No \_\_\_\_\_ 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.

NA

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

Frequency:  Quarterly  Semi-Annually  Annually  Other Final Report

Report Type:  Groundwater Monitoring  Land Treatment Progress Report  O&M Report

Other Produced Water Vessel Closure; NFA Status Request

## 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 690 cubic yards of impacted soil were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling. Approximately 70 cubic yards of impacted hydro-vacuum slurry were transported to the ARF in Weld County, Colorado, for recycling.

Volume of E&P Waste (solid) in cubic yards 760

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

COGCC Disposal Facility ID #, if applicable: 149007

Non-COGCC Disposal Facility: Kerr-McGee Land Treatment Facility (690 cubic yards) and the ARF (70 cubic yards)

Volume of E&P Waste (liquid) in barrels 0

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

## REMEDIATION COMPLETION REPORT

### REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes

Do all soils meet Table 910-1 standards? No

Does the previous reply indicate consideration of background concentrations? \_\_\_\_\_

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

Does Groundwater meet Table 910-1 standards? Yes

Is additional groundwater monitoring to be conducted? No

## 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 partially-buried produced water sump and the oil tanks have been inspected and will be replaced where appropriate. The site will be restored to its pre-release grade.

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 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. 05/08/2017

Actual Spill or Release date, if known. 05/07/2018

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 05/07/2018

Date of commencement of Site Investigation. 05/07/2017

Date of completion of Site Investigation. 07/24/2018

### REMEDIAL ACTION DATES

Date of commencement of Remediation. 05/07/2018

Date of completion of Remediation. 07/24/2018

### SITE RECLAMATION DATES

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

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

### 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: Sr. Staff HSE Rep.

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

Email: Gregory.Hamilton@anadarko.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: 11600

### COA Type

### Description

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

### 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

401726382	ANALYTICAL RESULTS
401726389	SOIL SAMPLE LOCATION MAP

Total Attach: 2 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)