

State of Colorado Oil and Gas Conservation Commission

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Receive Date:

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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 & GAS ONSHORE LP</u> | Operator No: <u>47120</u> | Phone Numbers |
| 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>Phil.Hamlin@anadarko.com</u> | Mobile: <u>()</u> |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 3952 Initial Form 27 Document #: 2057613

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 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

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

| | | | |
|---|----------------------------|-------------------------------|-------------------------------|
| Facility Type: <u>LOCATION</u> | Facility ID: <u>328545</u> | API #: _____ | County Name: <u>WELD</u> |
| Facility Name: <u>FRITZLER-64N66W 31NWNE</u> | | Latitude: <u>40.273020</u> | Longitude: <u>-104.818150</u> |
| ** correct Lat/Long if needed: Latitude: <u>40.272573</u> | | Longitude: <u>-104.820136</u> | |
| QtrQtr: <u>NWNE</u> | Sec: <u>31</u> | Twp: <u>4N</u> | Range: <u>66W</u> |
| Meridian: <u>6</u> | | Sensitive Area? <u>Yes</u> | |

SITE CONDITIONS

General soil type - USCS Classifications SW Most Sensitive Adjacent Land Use 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 200 feet (ft) west, surface water (irrigation canal) approximately 750 ft southeast, livestock approximately 1,270 ft north, building approximately 200 ft northwest, and groundwater approximately 14 ft below ground surface (bgs).

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/Analytical Results |
| Yes | SOILS | 31' N-S x 41' E-W x 20' bgs | Soil Samples/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.

A corrosion hole in a water dump line lead to the discovery of historical petroleum hydrocarbon impacts around the partially buried produced water sump at the Fritzler UPRR 31-31 tank battery. The petroleum hydrocarbon impacted soil and groundwater were removed. The steel water sump was replaced with a new fiberglass unit.

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):

Please refer to the Form 27 submitted to the Colorado Oil and Gas Conservation Commission (COGCC) on June 28, 2007.

Proposed Groundwater Sampling

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

Quarterly groundwater monitoring has been conducted at the site since May 2007.

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 4
Number of soil samples exceeding 910-1 0
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 1271

NA / ND

ND Highest concentration of TPH (mg/kg) _____
NA Highest concentration of SAR _____
BTEX > 910-1 No
Vertical Extent > 910-1 (in feet) 0

Groundwater

Number of groundwater samples collected 763
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 14'
Number of groundwater monitoring wells installed 24
Number of groundwater samples exceeding 910-1 159

-- Highest concentration of Benzene (µg/l) 35000
-- Highest concentration of Toluene (µg/l) 35000
-- Highest concentration of Ethylbenzene (µg/l) 30000
-- Highest concentration of Xylene (µg/l) 19000
NA Highest concentration of Methane (mg/l) 0

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?

Groundwater impacts were detected in the adjoining agricultural field north of the tank battery.

☐ 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?

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 1,188 cubic yards of petroleum hydrocarbon impacted soil were removed from the excavation and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling. The impacted soil was excavated into the capillary and phreatic zones to address potential hydrocarbon impacts that may have been present below the groundwater table due to past seasonal fluctuations. Approximately 9 barrels of petroleum hydrocarbon impacted groundwater were removed from the excavation and transported to a licensed injection facility for disposal. The general site layout and excavation footprint are depicted on the Site Map attached 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.

Remediation details are provided in the Remediation Summary Attachment.

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) 1188
Name of Licensed Disposal Facility or COGCC Facility ID # 149007
No Excavate and onsite remediation
_____ Land Treatment
_____ Bioremediation (or enhanced bioremediation)
_____ Chemical oxidation
_____ Other _____

Groundwater Remediation Summary

Yes Bioremediation (or enhanced bioremediation)
No Chemical oxidation
Yes Air sparge / Soil vapor extraction
Yes Natural Attenuation
Yes Other Groundwater Removal and
MicroBlaze® Application (2006);
BOS 200® Application (2014)

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 MW01 through MW03, MW05, MW07 through MW12, MW14 through MW17, MW19, and MW20R are sampled on a quarterly basis and submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes by United States Environmental Protection Agency Method 8260C. The monitoring well locations are depicted on Figure 1. A Groundwater Elevation Contour Map generated using the November 2018 survey data is provided as Figure 2. The groundwater analytical results are summarized in Table 1, and the laboratory analytical report for the November 2018 groundwater monitoring event is attached.

Groundwater monitoring will continue on a quarterly basis until a No Further Action status request is warranted.

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:

The petroleum hydrocarbon impacted soil was transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling.

Volume of E&P Waste (solid) in cubic yards 1188

E&P waste (solid) description Petroleum Hydrocarbon Impacted Soil

COGCC Disposal Facility ID #, if applicable: 149007

Non-COGCC Disposal Facility: _____

Volume of E&P Waste (liquid) in barrels 9

E&P waste (liquid) description Petroleum Hydrocarbon Impacted Groundwater

COGCC Disposal Facility ID #, if applicable: 159443

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? Yes _____

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 was restored to its pre-release grade. The Kerr-McGee production facility remains at this site.

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. _____

Actual Spill or Release date, if known. 10/06/2006

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/30/2006

Date of commencement of Site Investigation. 10/06/2006

Date of completion of Site Investigation. 08/30/2010

REMEDIAL ACTION DATES

Date of commencement of Remediation. 10/06/2006

Date of completion of Remediation. _____

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: Phil Hamlin

Title: Senior HSE Representative

Submit Date: 12/17/2018

Email: Phil.Hamlin@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: PETER GINTAUTAS

Date: 12/17/2018

Remediation Project Number: 3952

COA Type

Description

| | |
|--|---|
| | Submit reports of site investigation and progress of remediation including results of sampling and analysis on an annual basis or more often until remediation is closed. |
|--|---|

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.

| <u>Att Doc Num</u> | <u>Name</u> |
|--------------------|--------------------------------|
| 401795026 | FORM 27-SUPPLEMENTAL-SUBMITTED |
| 401795073 | LOGS |
| 401869762 | ANALYTICAL RESULTS |
| 401871761 | SITE MAP |
| 401871769 | GROUND WATER ELEVATION MAP |
| 401871779 | MAP |
| 401873221 | REMEDIAL PROGRESS REPORT |

Total Attach: 7 Files

General Comments

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

Total: 0 comment(s)