

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

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Receive Date:

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

Report taken by:

OPERATOR INFORMATION

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 723 Initial Form 27 Document #: 1104811

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: LOCATION	Facility ID: 318880	API #: _____	County Name: WELD
Facility Name: FORT ST VRAIN-63N67W 10SWSE		Latitude: 40.235510	Longitude: -104.871650
		** correct Lat/Long if needed: Latitude: 40.238719	Longitude: -104.876669
QtrQtr: SWSE	Sec: 10	Twp: 3N	Range: 67W 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? Yes
 Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

A water well is located approximately 500 feet (ft) north, surface water (irrigation ditch) is located approximately 900 ft northeast, and groundwater is present approximately 22 feet 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 checked="" 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	GROUNDWATER	See attached data	Groundwater Samples/Lab Results
Yes	SOILS	135' N-S x 70' E-W x 15' bgs (max)	4 excavations between 2001 and 2008; Soil Samples/Lab 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 September 9, 2001, a separator malfunction at the Fort St. Vrain-4 facility resulted in an oil dump valve malfunction, causing a pressurized spray of 1 to 3 barrels of oil to be released from the storage tank hatch onto the ground surface. The impacted soil was excavated. A minor amount of oil (1 pint to 1 quart) of oil contacted surface water in a drainage ditch directly west of the site. The oil on the drainage ditch was removed with absorbent pads before it could migrate.

On February 4, 2005, historical petroleum hydrocarbon impacts to soil and groundwater were encountered during excavation activities. The source of the release was determined to be from a corrosion hole in a dump line. The petroleum hydrocarbon impacted soil was excavated, and the dumpline was replaced.

On April 25, 2008, a release was discovered while pressure testing the flowlines and dumplines, and one or more lines did not hold pressure. Field crews exposed the lines and found a washed out "T" on the dumpline at the separator. The petroleum hydrocarbon impacted soil was excavated. While replacing the dumplines, additional petroleum hydrocarbon impacted soil was encountered at the tank battery. The impacted soil at the tank battery was also 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 October 1, 2001 and May 28, 2008, 32 soil samples were collected from the 2001, 2005, and 2008 excavations for laboratory analysis of total petroleum hydrocarbons (TPH). Laboratory analytical results indicated that TPH concentrations were in full compliance with the Colorado Oil and Gas Conservation Commission (COGCC) sensitive area allowable level of 1,000 milligrams per kilogram (mg/kg) at the extents of the excavations. The soil samples were not analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) as the samples were collected prior to the April 1, 2009, COGCC rule changes. Please refer to the Form 27 for the 2001 release submitted to the COGCC on October 10, 2001, the Form 27 for the 2005 release submitted on November 16, 2005, and the Form 27 for the 2008 release submitted on August 11, 2008.

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 October 2001.

Proposed Surface Water Sampling

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

On September 7, 2001, two surface water samples (DSS-01 and DSS-02) were collected from the drainage ditch and submitted for laboratory analysis of BTEX. Laboratory analytical results for the two surface water samples indicated that BTEX concentrations were less than the laboratory reporting limit except for sample DSS-02, which had a total xylenes concentration of 2 micrograms per liter (µg/L). Please refer to the Form 27 for the 2001 release submitted to the COGCC on October 10, 2001 for additional details.

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 32
Number of soil samples exceeding 910-1 4
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 6160

NA / ND

-- Highest concentration of TPH (mg/kg) 9068
NA Highest concentration of SAR
BTEX > 910-1 Yes
Vertical Extent > 910-1 (in feet) 12

Groundwater

Number of groundwater samples collected 508
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 22'
Number of groundwater monitoring wells installed 31
Number of groundwater samples exceeding 910-1 138

-- Highest concentration of Benzene (µg/l) 1600
-- Highest concentration of Toluene (µg/l) 48
-- Highest concentration of Ethylbenzene (µg/l) 970
-- Highest concentration of Xylene (µg/l) 14700
NA Highest concentration of Methane (mg/l)

Surface Water

2 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?

Groundwater impacts were detected in the fields north and northwest of the excavation.

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? Yes _____

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

In 2001, approximately 750 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. In 2005, approximately 1,272 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. In 2008, approximately 650 cubic yards of petroleum hydrocarbon impacted soil were removed from the excavation and transported to the Front Range Landfill in Erie, Colorado, for disposal. The 2001, 2005, and 2008 excavation extents 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.

Please refer to the attached Remediation Summary.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) _____ 2672

_____ 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

Yes _____ Air sparge / Soil vapor extraction

Yes _____ Natural Attenuation

Yes _____ Other _____
Groundwater and Free Product
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.

Groundwater monitoring wells MW01R2, MW04R2, MW05R3, MW07R, MW09, MW10, MW14R, MW15, and MW16 are sampled on a quarterly basis and submitted for laboratory analysis for BTEX by United States Environmental Protection Agency Method 8260D. Assessment wells AW01 and AW04 and monitoring well MW05R3 are monitored on a quarterly basis and bailed of free product on a bi-monthly basis. The monitoring well locations are depicted on Figure 1. A Groundwater Elevation Contour Map generated using the August 2020 survey data is provided as Figure 2. The groundwater analytical results are summarized in Table 1, and the laboratory analytical reports for the November 2019, February 2020, May 2020, and August 2020 monitoring events are 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:

For the 2001 excavation, approximately 750 cubic yards of petroleum hydrocarbon impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling.

For the 2005 excavation, approximately 1,272 cubic yards of petroleum hydrocarbon impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for recycling.

Volume of E&P Waste (solid) in cubic yards 2672

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

COGCC Disposal Facility ID #, if applicable: 149007

Non-COGCC Disposal Facility: Front Range Landfill in Erie, Colorado
(650 cubic yards)

Volume of E&P Waste (liquid) in barrels 49

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 and the facility was reconstructed. The Kerr-McGee production facility remains at the 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. 09/07/2001

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/07/2001

Date of commencement of Site Investigation. 09/07/2001

Date of completion of Site Investigation. 08/25/2011

REMEDIAL ACTION DATES

Date of commencement of Remediation. 09/07/2001

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 Environmental Rep.

Submit Date: ` _____

Email: Phil_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: _____

Date: _____

Remediation Project Number: 723

COA Type

Description

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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.

<u>Att Doc Num</u>	<u>Name</u>
402490121	ANALYTICAL RESULTS
402492122	SITE MAP
402492124	GROUND WATER ELEVATION MAP
402508047	REMEDATION PROGRESS REPORT

Total Attach: 4 Files

General Comments

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

Total: 0 comment(s)