

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:
402315834
Receive Date:
02/28/2020

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@oxy.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 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 type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation	<input checked="" 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:

- | | | |
|--|--|--|
| <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/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):

On October 30, 2006, four soil samples were collected from the excavation sidewalls and submitted 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 extent of the excavation. 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. The excavation dimensions and soil sample locations are depicted on the Excavation Site Map provided as Figure 1. The soil sample analytical results are summarized on Table 1.

Proposed Groundwater Sampling

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

On October 30, 2006, one groundwater sample (FGW01) was collected from the excavation and submitted for laboratory analysis of BTEX. Laboratory analytical results indicated sample FGW01 exceeded the COGCC Table 910-1 allowable level for benzene, toluene, and total xylenes at concentrations of 2,900 micrograms per liter (µg/L), 4,100 µg/L, and 3,400 µg/L, respectively. The excavation groundwater sample location is depicted on Figure 1. The excavation groundwater sample analytical results are summarized in Table 2.

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 836
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 910-1 160

-- 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) _____

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 2.

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

Ex Situ

<u> </u> Bioremediation (or enhanced bioremediation)	<u>Yes</u> Excavate and offsite disposal
<u> </u> Chemical oxidation	<u> </u> If Yes: Estimated Volume (Cubic Yards) <u> </u> 1188
<u> </u> Air sparge / Soil vapor extraction	<u> </u> Name of Licensed Disposal Facility or COGCC Facility ID # <u> </u> 149007
<u> </u> Natural Attenuation	<u>No</u> Excavate and onsite remediation
<u> </u> Other <u> </u>	<u> </u> Land Treatment
	<u> </u> Bioremediation (or enhanced bioremediation)
	<u> </u> Chemical oxidation
	<u> </u> Other <u> </u>

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.

Between May 2007 and August 2016, twenty groundwater monitoring wells (MW01 through MW21) and three replacement monitoring wells (MW08R, MW10R, and MW20R) were installed at the site. Groundwater monitoring continued on a quarterly basis. Monitoring wells MW04, MW06, MW13, MW18, MW21 were removed from the groundwater monitoring program as approved by the COGCC in the email dated August 28, 2013. The monitoring well locations are depicted on Figure 2. Boring logs with monitoring well completion diagrams are attached.

On December 10, 2013, monitoring wells MW01 through MW21 were surveyed to obtain the relative groundwater and top-of-casing well elevation data. The survey data indicated the groundwater flow direction at the site is to the north. Relative groundwater elevations are provided in Table 2. Groundwater Elevation Contour Maps for the second quarter 2019 through first quarter 2020 monitoring events are provided as Figures 3A through 3D, respectively.

As of the February 2020 quarterly monitoring event, BTEX concentrations in monitoring wells MW01 through MW03, MW05, MW07 through MW12, MW14 through MW17, MW19, and MW20R were in full compliance with COGCC Table 910-1 allowable levels for four consecutive quarterly monitoring events. The groundwater analytical results are summarized in Table 2. The analytical reports for the four compliant groundwater monitoring events are attached.

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 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:

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? Yes

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? 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 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. 02/06/2020

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

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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: 02/28/2020 _____

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: PETER GINTAUTAS _____

Date: 02/28/2020 _____

Remediation Project Number: 3952 _____

COA Type**Description**

	Based on the information presented, it is concluded that no further action is necessary at this time and the COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if ground water is found to be impacted, then further investigation and/or further remediation activities may be required. In addition, the surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules.
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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**

402315834	FORM 27-SUPPLEMENTAL-SUBMITTED
402315844	LOGS
402316582	ANALYTICAL RESULTS
402323063	GROUND WATER ELEVATION MAP
402323071	SITE MAP
402323088	SOIL SAMPLE LOCATION MAP
402323745	MAP
402327676	REMEDIATION PROGRESS REPORT

Total Attach: 8 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)