

State of Colorado
Oil and Gas Conservation Commission

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Document Number:
402154200

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: Phil Hamlin	Email: Phil_Hamlin@oxy.com	
		Phone: (970) 336-3500
		Mobile: (970) 515-1161

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 9879 Initial Form 27 Document #: 200440443

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: 447504 API #: _____ County Name: WELD

Facility Name: SPILL/RELEASE POINT Latitude: 40.199599 Longitude: -104.827355

** correct Lat/Long if needed: Latitude: _____ Longitude: _____

QtrQtr: NWNW Sec: 30 Twp: 3N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SW Most Sensitive Adjacent Land Use Non Crop Land

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

A livestock grazing area is located approximately 145 feet south of the release location. A building is located approximately 230 feet northwest of the release location.

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 checked="" 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 sampling and laboratory analysis
Yes	SOILS	20' (E-W) x 13' (N-S) x 5' bgs	Excavation, soil sampling, and 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.

On August 24, 2016, a release due to a corroded separator fire tube was discovered at the Lorenz Federal L30-4, L30-3; Lorenz L30-5 production facility. The location was shut in, associated infrastructure removed, and excavation activities were initiated. Groundwater was encountered in the excavation at approximately 5 feet below ground surface (bgs). The COGCC has issued Spill/Release Point ID 447504 for this release. A partially-buried produced water vessel was removed during excavation activities.

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):

Soil samples were collected as described in the Initial Form 27. Based on the data presented, impacted soils in the excavation area were remediated to be in full compliance with COGCC standards. Soil sample analytical data is presented in Table 1, and the soil sample locations are illustrated on Figure 1.

Proposed Groundwater Sampling

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

Groundwater samples were collected as described herein. Based on the data presented, hydrocarbon impacts to groundwater were remediated to be in full compliance with COGCC standards. Groundwater analytical data is presented in Table 2. The excavation groundwater sample locations are illustrated on Figure 1, and the temporary groundwater monitoring well locations are illustrated on Figures 2 through 5. The laboratory analytical reports for the previous four quarters of monitoring are provided as Attachment A.

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 5
Number of soil samples exceeding 910-1 1
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 200

NA / ND

-- Highest concentration of TPH (mg/kg) 464
NA Highest concentration of SAR
BTEX > 910-1 Yes
Vertical Extent > 910-1 (in feet) 5

Groundwater

Number of groundwater samples collected 33
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 3'
Number of groundwater monitoring wells installed 7
Number of groundwater samples exceeding 910-1 4

-- Highest concentration of Benzene (µg/l) 105
-- Highest concentration of Toluene (µg/l) 427
-- Highest concentration of Ethylbenzene (µg/l) 185
-- Highest concentration of Xylene (µg/l) 1490
NA Highest concentration of Methane (mg/l)

Surface Water

0 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?

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.

Between August 24 and 25, 2016, approximately 50 cubic yards of impacted material were excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado. Laboratory analytical results indicated that constituent concentrations in the soil samples collected from the final lateral extent of the excavation area were in full compliance with COGCC standards. Soils were excavated into the phreatic zone to address potential hydrocarbon impacts that may have been present below the current groundwater table due to seasonal fluctuations. Groundwater was encountered in the excavation area at approximately 5 feet bgs. A groundwater sample (GW01) was collected from the excavation and submitted for laboratory analysis of BTEX. Groundwater analytical results received on August 25, 2016, indicated that the benzene and total xylenes concentrations in sample GW01 were out of compliance with the COGCC standards. A second groundwater sample (GW02) was collected following the removal of approximately 80 barrels of groundwater from the excavation, and submitted for laboratory analysis of BTEX. Analytical results received on August 26, 2016, indicated that the benzene concentration in sample GW02 remained out of compliance with the COGCC standard.

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.

Prior to backfilling, approximately 165 pounds of activated carbon were added to the groundwater within the excavation area to mitigate remaining hydrocarbon impacts in groundwater. Based on the analytical data presented herein, remediation is complete at this site and Kerr-McGee is requesting a No Further Action (NFA) determination for this release.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)
_____ Chemical oxidation
_____ Air sparge / Soil vapor extraction
_____ Natural Attenuation
_____ Other _____

Yes Excavate and offsite disposal
_____ If Yes: Estimated Volume (Cubic Yards) 50
Name of Licensed Disposal Facility or COGCC Facility ID # _____
No Excavate and onsite remediation
_____ 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
Yes _____ Natural Attenuation
Yes _____ Other Groundwater removal, activated carbon adsorption _____

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 March 7 and September 7, 2018, a total of seven (7) temporary groundwater monitoring wells (BH01 - BH05, BH03R, BH04R) were installed at the site to further assess the extent of remaining groundwater impacts. The temporary monitoring wells were sampled on a quarterly basis and submitted for laboratory analysis of BTEX. Temporary monitoring wells BH03 and BH04 were destroyed following the Third Quarter 2018 sampling event, and were subsequently replaced by BH03R and BH04R, respectively. Analytical results for the groundwater samples collected from the temporary monitoring wells indicate that constituent concentrations were in full compliance with COGCC standards for four consecutive quarters. Temporary groundwater monitoring well locations and the four most recent quarterly groundwater elevation contour maps are illustrated on Figures 2 through 5. Well completion logs for the temporary monitoring wells are provided as Attachment B.

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 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:

NA

Volume of E&P Waste (solid) in cubic yards 50

E&P waste (solid) description Hydrocarbon impacted soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Buffalo Ridge Landfill - Keenesburg, Colorado

Volume of E&P Waste (liquid) in barrels 80

E&P waste (liquid) description Hydrocarbon impacted groundwater

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Licensed 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 has been restored to its pre-release grade. Kerr-McGee will consult with the surface owner to determine reclamation specifics to properly conduct reclamation activities in accordance with COGCC 1000 Series Rules.

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. 08/24/2016

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/24/2016

Date of commencement of Site Investigation. 08/24/2016

Date of completion of Site Investigation. 09/07/2018

REMEDIAL ACTION DATES

Date of commencement of Remediation. 08/24/2016

Date of completion of Remediation. 07/11/2019

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

As described, laboratory analytical data for the soil samples collected from the final lateral extent of the excavation were in full compliance with COGCC standards. Laboratory analytical data for the groundwater samples collected from the temporary monitoring wells indicated that constituent concentrations were in full compliance with COGCC standards for four consecutive quarters. Soil analytical results are summarized in Table 1, and groundwater analytical results are summarized in Table 2. Excavation soil and groundwater sample locations are illustrated on Figure 1; temporary monitoring well locations and the four most recent quarterly groundwater contour maps are illustrated on Figures 2 through 5. Laboratory analytical reports and temporary monitoring well completion diagrams are provided as Attachments A and B, respectively. Based on the remediation activities completed at the site and the analytical results presented herein, Kerr-McGee is requesting an NFA determination for this release.

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: _____

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: 9879

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.

Att Doc Num**Name**

402154259	LOGS
402154261	SOIL SAMPLE LOCATION MAP
402154265	GROUND WATER ELEVATION MAP
402154267	ANALYTICAL RESULTS
402154268	ANALYTICAL RESULTS
402165896	ANALYTICAL RESULTS

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)