

State of Colorado
Oil and Gas Conservation Commission

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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>Phillip Hamlin</u>	Email: <u>Phillip_Hamlin@oxy.com</u>	Mobile: <u>(970) 515-1161</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION
Remediation Project #: 9246 Initial Form 27 Document #: 200437171

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>SPILL OR RELEASE</u>	Facility ID: <u>443193</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>SPILL/RELEASE POINT</u>	Latitude: <u>40.090352</u>	Longitude: <u>-104.882153</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSW</u>	Sec: <u>34</u>	Twp: <u>2N</u>	Range: <u>67W</u>
Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>		

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use 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

Surface water is located approximately 110 feet east of the release location. The nearest water well is located approximately 280 feet southwest of the release location. Multiple buildings are located within 1/4 mile 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 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	170' (E-W) x 265' (N-S) x 4' 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 April 10, 2014, historical impacts were discovered during abandonment activities at the Hanks Pooling Unit #1 production facility, and excavation activities were initiated. Groundwater was encountered in the excavation at approximately 4 feet below ground surface (bgs). The COGCC issued Spill/Release Point ID 443193 for this release.

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 (COGCC Document No. 200437171) and the Supplemental Letter Reports referenced below. Based on the data presented, impacted soils in the excavation area were remediated to be in full compliance with the COGCC Table 910-1 standards, with the exception of impacted soil left in-place adjacent to a third-party produced water vessel containment berm, near soil samples RT-N05@6' and RT-W03@6'. Soil sample location figures and soil sample analytical data were provided in a previous Form 27-Supplemental update (COGCC Document No. 401367444).

Proposed Groundwater Sampling

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

Between January 10, 2017 and November 2, 2020, a total of 24 temporary groundwater monitoring wells (BH01 - BH22, BH01R, and BH11R) were installed to further assess the extent of groundwater impacts. Quarterly groundwater sampling was initiated on January 26, 2017, and is ongoing at the 22 remaining monitoring wells. BH01 and BH11 were noted as damaged during the Fourth Quarter 2020 monitoring event and were replaced with BH01R and BH11R, respectively. Groundwater samples are collected from the temporary monitoring wells on a quarterly basis and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalene, 1,2,4- and 1,3,5-trimethylbenzene, chloride, sulfate, and total dissolved solids (TDS). Groundwater analytical data is presented in Table 1, and the groundwater sample locations are illustrated on Figure 1. The laboratory analytical reports for the previous four quarters of groundwater 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):

Surface water samples were collected as described in a previous Form 27-Supplemental update (COGCC Document No. 401367444). Based on the data presented, surface water concentrations were in full compliance with the COGCC Table 910-1 standards.

Additional Investigative Actions

Additional alternative investigative actions described in attached Site Investigation Plan (summary):

On March 4 and December 16, 2016, Kerr-McGee provided the COGCC with Supplemental Letter Reports #1 and #2, respectively. These updates detailed the 2015 Suncor Energy Pipeline right-of way assessment activities, and the 2016 soil excavation and assessment activities. Additional details regarding these activities can be found in the referenced letter reports.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 73
Number of soil samples exceeding 910-1 29
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 16300

NA / ND

-- Highest concentration of TPH (mg/kg) 7610
NA Highest concentration of SAR
BTEX > 910-1 Yes
Vertical Extent > 910-1 (in feet) 7

Groundwater

Number of groundwater samples collected 333
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 5'
Number of groundwater monitoring wells installed 24
Number of groundwater samples exceeding 910-1 116

-- Highest concentration of Benzene (µg/l) 3730
-- Highest concentration of Toluene (µg/l) 1670
-- Highest concentration of Ethylbenzene (µg/l) 1960
-- Highest concentration of Xylene (µg/l) 11600
NA Highest concentration of Methane (mg/l)

Surface Water

3 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?

Impacted groundwater has been detected in off-site temporary groundwater monitoring well BH18.

Were background samples collected as part of this site investigation?

On November 14, 2016, one background soil sample was collected and analyzed for specific conductance. The background sample was in full compliance with the COGCC Table 910-1 standard.

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?

Hydrocarbon-impacted soil remains at the site, adjacent to a third-party facility, as previously described. Hydrocarbon-impacted groundwater also remains at the site. The 22 temporary groundwater monitoring wells remaining (BH01R, BH02 - BH10, BH11R, and BH12 - BH22) will continue to be sampled on a quarterly basis and submitted for laboratory analysis of BTEX, naphthalene, TMB, chloride, sulfate, and TDS until concentrations remain in full compliance with the COGCC Table 915-1 standards for four consecutive quarters.

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 April 10, 2014, and November 14, 2016, approximately 5,080 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal. Approximately 400 barrels of impacted groundwater were removed from the excavation via vacuum truck and transported to a licensed disposal facility.

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.

Laboratory data indicate that impacted soils in the excavation area have been remediated to be in full compliance with the COGCC Table 910-1 standards, with the exception of soil located adjacent to the third-party produced water vessel containment berm located in the northwest portion of the former excavation area. Prior to backfilling, approximately 605 pounds of OxPure® activated carbon were added to the excavation to mitigate remaining hydrocarbon impacts in groundwater. Quarterly groundwater monitoring is ongoing and will be continued until concentrations remain in full compliance with the COGCC Table 915-1 standards for four consecutive quarters. Additional remedial activities may be evaluated, as necessary, to address remaining soil and groundwater impacts. Estimated time to attain NFA is TBD based on the groundwater concentrations, the extent of impacted soil and groundwater, and the efficacy of the selected remedial technologies.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 5080

_____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____

_____ 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

Yes _____ Natural Attenuation

Yes _____ Other _____
Groundwater removal, OxPure®
activated carbon application

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 January 10, 2017 and November 2, 2020, 24 temporary groundwater monitoring wells (BH01 - BH22, BH01R, and BH11R) were installed to further assess the extent of groundwater impacts. The temporary groundwater monitoring wells will continue to be sampled on a quarterly basis and submitted for laboratory analysis of BTEX, naphthalene, TMB, chloride, sulfate, and TDS until concentrations remain in full compliance with the COGCC Table 915-1 standards for four consecutive quarters. Cross-gradient and historically compliant groundwater monitoring well BH20 was selected from the First Quarter 2021 monitoring event as a background location for comparison to inorganic groundwater standards in Table 915-1. Based on a comparison to background concentrations, point-of-compliance (POC) monitoring wells BH05 and BH06 were above the Table 915-1 standard for chloride during the First Quarter 2021 monitoring event. Kerr-McGee will continue to evaluate POC for Table 915-1 standards on a quarterly basis, based on the site-specific local background concentrations. Groundwater sample locations are illustrated on Figure 1, and a potentiometric surface contour map for the First Quarter 2021 is presented as Figure 2. Well completion logs for the temporary monitoring wells are provided as Attachment B.

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:

NA

Volume of E&P Waste (solid) in cubic yards 5080

E&P waste (solid) description Hydrocarbon-impacted soil

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Front Range Landfill - Erie, Colorado

Volume of E&P Waste (liquid) in barrels 400

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? No

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? No

Does Groundwater meet Table 910-1 standards? No

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 has been restored to its pre-release grade. Kerr-McGee will 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. _____

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/10/2014

Date of commencement of Site Investigation. 04/10/2014

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 04/10/2014

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

Based on the previously approved reporting frequency, Kerr-McGee will continue to provide annual Form 27-Supplemental updates for this site.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: Phillip Hamlin

Title: Senior Environmental Rep

Submit Date: 03/17/2021

Email: Phillip_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: 03/18/2021

Remediation Project Number: 9246

COA Type

Description

	Submit reports of site investigation and progress of remediation including results of quarterly groundwater sampling and analysis on an annual basis or more often until the remediation project is closed.
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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>
402622349	FORM 27-SUPPLEMENTAL-SUBMITTED
402622350	LOGS
402622353	ANALYTICAL RESULTS
402624925	ANALYTICAL RESULTS
402632033	GROUND WATER SAMPLE LOCATION
402632038	GROUND WATER ELEVATION MAP

Total Attach: 6 Files

General Comments

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

Total: 0 comment(s)