

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 Phone: <u>(970) 336-3500</u> Mobile: <u>(970) 515-1161</u>
Address: <u>P O BOX 173779</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>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 9264 Initial Form 27 Document #: 200437395

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>442346</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>SPILL/RELEASE POINT</u>		Latitude: <u>40.205743</u>	Longitude: <u>-104.826514</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>SWSW</u>	Sec: <u>19</u>	Twp: <u>3N</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 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

Surface water is located approximately 250 feet west of the release location. The nearest domestic water well is located approximately 250 feet northwest of the release location. Multiple buildings and livestock holding pens are located within 1/4 mile of the release location.

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 sampling and laboratory analysis
Yes	SOILS	95' (E-W) x 75' (N-S) x 14' 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 July 1, 2015, historical impacts were discovered during abandonment activities at the Platteville 1-19 (formerly Platteville 63N66W19SWSW) production facility, and excavation activities were initiated. Groundwater was encountered in the excavation at approximately 6 feet below ground surface (bgs). The COGCC issued Spill/Release Point ID 442346 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 from the historical 2015 excavation area, as described in the Initial Form 27 (COGCC Document No. 200437395). Additional soil sampling was conducted during the engineered excavation and remediation activities completed at the site in 2019, as described a previous Form 27-Supplemental update (COGCC Document No. 402125363). Based on the data presented, impacted soils in the 2015 and 2019 excavation areas were remediated to be in full compliance with the COGCC Table 910-1 standards.

Proposed Groundwater Sampling

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

Between October 28, 2015 and August 30, 2019, 28 temporary groundwater monitoring wells (BH01-BH19, BH01R-BH04R, BH06R, BH07R, BH09R, BH09R2, BH16R) were installed to further assess the extent of groundwater impacts and for remediation purposes. Quarterly groundwater sampling was initiated on October 30, 2015, and is ongoing at the 14 monitoring wells remaining at the site (BH01R, BH04R, BH06R, BH07R, BH08, BH09R2, BH10-BH15, BH16R, and BH19). Monitoring wells BH01-BH07, BH09, BH16-BH18, BH02R, BH03R, and BH09R were destroyed, removed during remediation activities in 2019, or abandoned under an approved monitoring well reduction request (COGCC Document No. 402443737). Groundwater analytical data is presented in Table 1, and the groundwater sample locations are illustrated on Figure 1. Laboratory analytical reports for the previous two 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):

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 67
Number of soil samples exceeding 910-1 1
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 4360

NA / ND

-- Highest concentration of TPH (mg/kg) 862
NA Highest concentration of SAR
BTEX > 910-1 Yes
Vertical Extent > 910-1 (in feet) 14

Groundwater

Number of groundwater samples collected 302
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 10'
Number of groundwater monitoring wells installed 28
Number of groundwater samples exceeding 910-1 80

-- Highest concentration of Benzene (µg/l) 8480
-- Highest concentration of Toluene (µg/l) 18900
-- Highest concentration of Ethylbenzene (µg/l) 686
-- Highest concentration of Xylene (µg/l) 15300
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?

Impacted groundwater has been detected in off-site temporary groundwater monitoring wells BH12 and BH13.

☐ 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?

Hydrocarbon-impacted groundwater remains at the site. The 14 temporary groundwater monitoring wells remaining (BH01R, BH04R-BH07R, BH08, BH09R2, BH10-BH15, BH19) will continue to be sampled on a quarterly basis and submitted for laboratory analysis of BTEX, naphthalene, 1,2,4- and 1,3,5-trimethylbenzene (TMB), chloride, sulfate, and total dissolved solids (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.

On July 1, 2015, approximately 230 cubic yards of impacted soil were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado. Approximately 80 barrels of impacted groundwater were removed from the 2015 excavation area via vacuum truck and transported to a licensed disposal facility. During the 2019 remedial excavation activities, approximately 1,820 barrels of groundwater were removed from the excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility.

REMEDICATION 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.

On November 23, 2015, LNAPL gauging and removal activities were initiated. A passive LNAPL bailer was installed in well BH09R on May 5, 2017, and bi-weekly LNAPL gauging and recovery events were conducted at monitoring wells BH01, BH04, BH06, and BH09R. In 2019, impacted soil from 2 to 14 ft bgs was treated in-situ using chemical oxidant (chemox) soil mixing techniques with a dilute hydrogen peroxide solution. On-site excavation and chemox soil mixing activities were conducted from July 17 to August 2, 2019, and treated approximately 1,200 cubic yards of impacted soil. Analytical results indicated that impacted soils in the 2015 and 2019 excavation areas have been remediated to be in full compliance with the COGCC Table 910-1 standards. Prior to backfilling, approximately 302 pounds of OxPure® activated carbon were added to the 2019 excavation area to mitigate remaining hydrocarbon impacts in groundwater. Details of the 2019 remediation activities were provided in a previous Form 27-Supplemental update (COGCC Document No. 402125363). 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 groundwater impacts. Estimated time to attain NFA is TBD based on the groundwater concentrations, the extent of impacted groundwater, and the efficacy of selected remedial technologies.

Soil Remediation Summary

☒ In Situ

No Bioremediation (or enhanced bioremediation)

Yes Chemical oxidation

No Air sparge / Soil vapor extraction

No Natural Attenuation

No Other

☒ Ex Situ

Yes Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) 230

Name of Licensed Disposal Facility or COGCC Facility ID # 149007

Yes Excavate and onsite remediation

No Land Treatment

No Bioremediation (or enhanced bioremediation)

Yes Chemical oxidation

No 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, LNAPL recovery, 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 October 28, 2015, and August 30, 2019, a total of 28 temporary groundwater monitoring wells (BH01 - BH19, BH01R - BH04R, BH06R, BH07R, BH09R, BH09R2, BH16R) were installed to further assess the extent of groundwater impacts and for remediation purposes. Monitoring wells BH01-BH07, BH09, BH16-BH18, BH02R, BH03R, and BH09R were destroyed, removed during remediation activities in 2019, or abandoned under an approved monitoring well reduction request (COGCC Document No. 402443737). The 14 temporary groundwater monitoring wells remaining (BH01R, BH04R, BH06R, BH07R, BH08, BH09R2, BH10 - BH15, BH16R, and BH19) 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. The temporary monitoring well 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:

Approximately 230 cubic yards of hydrocarbon-impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 1,820 barrels of hydrocarbon-impacted groundwater were transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards _____ 230

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

COGCC Disposal Facility ID #, if applicable: _____ 149007

Non-COGCC Disposal Facility: _____

Volume of E&P Waste (liquid) in barrels _____ 1900

E&P waste (liquid) description _____ Hydrocarbon impacted groundwater

COGCC Disposal Facility ID #, if applicable: _____ 434766

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? 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? 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. 07/02/2015

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/01/2015

Date of commencement of Site Investigation. 07/01/2015

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 07/01/2015

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

The extent of groundwater impacts has been fully delineated based on Table 910-1 standards as of the January 2020 groundwater monitoring event. Form 27 update reports will continue to be submitted to the COGCC on a quarterly basis until POC is established based on Table 915-1 standards.

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: ` 03/22/2021

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: 03/22/2021

Remediation Project Number: 9264

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.
	This report serves as adequate project summary and status update required to be submitted prior to April 15, 2021 as per rule 913.e.(2).

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**

402627642	FORM 27-SUPPLEMENTAL-SUBMITTED
402627685	LOGS
402627689	ANALYTICAL RESULTS
402636038	GROUND WATER SAMPLE LOCATION
402636039	GROUND WATER ELEVATION MAP
402636042	ANALYTICAL RESULTS

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)