

State of Colorado Oil and Gas Conservation Commission

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Report taken by:

CHRIS CANFIELD

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 Phone: (970) 336-3500 Mobile: (970) 515-1161
Address: P O BOX 173779		
City: DENVER	State: CO Zip: 80217-3779	
Contact Person: Phillip Hamlin	Email: Phillip_Hamlin@oxy.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 10875 Initial Form 27 Document #: 401466350

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: SPILL OR RELEASE	Facility ID: 453126	API #: _____	County Name: WELD
Facility Name: SPILL/RELEASE POINT		Latitude: 40.071457	Longitude: -104.983087
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: NENE	Sec: 10	Twp: 1N	Range: 68W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

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

Is domestic water well within 1/4 mile? No 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

An irrigation ditch is located approximately 1,225 feet west, and a pond is located approximately 1,250 feet northwest of the release location. Multiple buildings 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	98' (E-W) x 84' (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 September 20, 2017, historical impacts were discovered during third-party maintenance operations at the CPC 41-10 #1, Champlin 31-10 #3, 32-10 #2, 42-10 #4 production facility. The facility was shut-in, affected infrastructure was removed, and excavation activities were initiated. On November 6, 2017, groundwater was observed seeping into the excavation at approximately 13 feet below ground surface (bgs). The COGCC issued Spill/Release Point ID 453126 for this release. On June 13, 2019, during abandonment of the adjacent production facility, additional excavation activities were conducted to the south of the 2017 excavation area.

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 during the 2017 excavation activities, as described in the Form 27-Initial (COGCC Document No. 401466350), and during the 2019 excavation activities, as described in a Form 27-Supplemental update (COGCC Document No. 402202729). Based on the data presented, impacted soils in the 2017 and 2019 excavation areas were remediated to be in full compliance with the COGCC Table 910-1 standards, except for the SAR values in samples B15@14' and B16@14', which were collected below the designated root zone (0-3 feet bgs).

Proposed Groundwater Sampling

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

Between May 1, 2018 and March 1, 2019, 19 temporary groundwater monitoring wells (BH01-BH19) were installed to further assess the extent of groundwater impacts. Monitoring wells BH01 - BH06, BH08, BH14, and BH18 were destroyed during abandonment and reclamation activities at an adjacent production facility. The remaining monitoring wells (BH07, BH09-BH13, BH15-BH17, and BH19) were abandoned on June 12, 2020 per landowner request. On July 6 and 7, 2020, 16 replacement monitoring wells (BH01R-BH11R, BH13R, BH15R-BH17R, and BH19R) were installed under an approved monitoring well reduction request (COGCC Document No. 402407049). Quarterly groundwater monitoring was initiated on June 29, 2018, and is ongoing at the 16 replacement monitoring wells locations. Groundwater analytical data is presented in Table 1. The groundwater sample locations are illustrated on Figure 1. The 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 56

Number of soil samples exceeding 910-1 19

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 4590

NA / ND

-- Highest concentration of TPH (mg/kg) 1825

-- Highest concentration of SAR 16.65

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 14

Groundwater

Number of groundwater samples collected 169

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 6'

Number of groundwater monitoring wells installed 35

Number of groundwater samples exceeding 910-1 37

-- Highest concentration of Benzene (µg/l) 176

ND Highest concentration of Toluene (µg/l)

-- Highest concentration of Ethylbenzene (µg/l) 48.7

-- Highest concentration of Xylene (µg/l) 27.8

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?

Soil impacted above the COGCC Table 910-1 standards extended laterally beyond the lease boundary and was removed during excavation activities. Impacted groundwater has historically been detected in off-site temporary groundwater monitoring wells BH02, BH02R, BH04, BH05, BH06, BH09, BH10, and BH11.

☐ 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?

Impacted groundwater remains at the site. The 16 replacement temporary groundwater monitoring wells (BH01R - BH11R, BH13R, BH15R - BH17R, and BH19R) will continue to be sampled on a quarterly basis and submitted for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (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.

Between September 20 and November 9, 2017, approximately 1,390 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal. On June 13, 2019, approximately 370 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal.

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 2017 and 2019 excavation areas have been remediated to be in full compliance with the COGCC Table 910-1 standards, except for the SAR values in samples B15@14' and B16@14', which were collected below the designated root zone. 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 the selected remedial technologies.

Soil Remediation Summary

☐ In Situ

Bioremediation (or enhanced bioremediation)

Chemical oxidation

Air sparge / Soil vapor extraction

Natural Attenuation

Other

☒ Ex Situ

Yes Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) 1760

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

No Other

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 1, 2018 and March 1, 2019, 19 temporary groundwater monitoring wells (BH01 - BH19) were installed to further assess the extent of groundwater impacts. Monitoring wells BH01 - BH06, BH08, BH14, and BH18 were destroyed during abandonment and reclamation activities at an adjacent production facility. The remaining monitoring wells (BH07, BH09 - BH13, BH15 - BH17, and BH19) were abandoned on June 12, 2020 per landowner request. On July 6 and 7, 2020, 16 replacement monitoring wells (BH01R - BH11R, BH13R, BH15R - BH17R, and BH19R) were installed under an approved monitoring well reduction request (COGCC Document No. 402407049), based on the historical groundwater monitoring results. The replacement 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 BH07R was selected from the First Quarter 2021 monitoring event as the site-specific local background location for comparison to inorganic standards in Table 915-1. Based on a comparison to site-specific background concentrations, point-of-compliance (POC) monitoring wells BH09R, BH13R, and BH17R 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 1760

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 0

E&P waste (liquid) description _____

COGCC Disposal Facility ID #, if applicable: _____

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? 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? Yes _____

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. 09/22/2017

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/20/2017

Date of commencement of Site Investigation. 09/20/2017

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 09/20/2017

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: 03/24/2021

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: CHRIS CANFIELD

Date: 04/02/2021

Remediation Project Number: 10875

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

402634400	FORM 27-SUPPLEMENTAL-SUBMITTED
402634431	LOGS
402634433	GROUND WATER SAMPLE LOCATION
402634437	GROUND WATER ELEVATION MAP
402634438	ANALYTICAL RESULTS
402634439	ANALYTICAL RESULTS

Total Attach: 6 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)