

State of Colorado Oil and Gas Conservation Commission

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Report taken by:

Kari Brown

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.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

Name of Operator: KERR MCGEE OIL & GAS ONSHORE LP	Operator No: 47120	Phone Numbers Phone: (970) 336-3500 Mobile: ()
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 #: 9246 Initial Form 27 Document #: 200437171

PURPOSE INFORMATION

- ☐ Rule 913.c.(1): Pit or Cuttings Trench closure.
- ☐ Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- ☒ Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- ☐ Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- ☐ Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- ☒ Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- ☐ Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- ☐ Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- ☐ Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- ☐ Rule 913.g: Changes of Operator.
- ☐ Rule 915.b: Request to leave elevated inorganics in situ.
- ☐ Other: _____

SITE INFORMATION

No Multiple Facilities

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

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 domestic 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:

☒ 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	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 area 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). Based on the date of discovery and initiation of excavation activities (April 10, 2014), the COGCC Table 910-1 soil standards have been applied to the soil analytical results at this location.

Proposed Groundwater Sampling

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

Between January 10, 2017 and August 24, 2022, a total of 27 temporary groundwater monitoring wells (BH01 - BH25, 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 25 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 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 compliance with the applicable COGCC 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 915-1 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 > 915-1 Yes

Vertical Extent > 915-1 (in feet) 7

Groundwater

Number of groundwater samples collected 492

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 915-1 167

-- 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 915-1

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 BH18 and BH23.

☒ 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 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?

Impacted soil remains at the site, adjacent to a third-party facility, as previously described. Hydrocarbon-impacted groundwater also remains at the site. The 25 temporary groundwater monitoring wells remaining (BH01R, BH02 - BH10, BH11R, and BH12 - BH25) will continue to be sampled on a quarterly basis and submitted for laboratory analysis of Table 915-1 constituents.

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 compliance with the COGCC Table 915-1 standards. 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

<input type="checkbox"/> In Situ	<input checked="" type="checkbox"/> 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, a total of 27 temporary groundwater monitoring wells (BH01 - BH25, BH01R, and BH11R) were installed to further assess the extent of groundwater impacts. The 25 temporary groundwater monitoring wells remaining (BH01R, BH02 - BH10, BH11R, and BH12 - BH25) will continue to be sampled on a quarterly basis and submitted for laboratory analysis of Table 915-1 constituents. Recently-installed upgradient POC monitoring well BH23 exhibited benzene and 1,2,4-trimethylbenzene concentrations above the COGCC Table 915-1 standards during the Fourth Quarter 2022 monitoring event. However, based on the location of this monitoring well upgradient from the former Kerr-McGee infrastructure and apparent source area, and adjacent to active third-party infrastructure, the groundwater impacts identified in BH23 are likely unrelated to the release associated with this Remediation Project. Cross-gradient and historically compliant groundwater monitoring well BH20 was selected 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, the chloride concentrations in monitoring wells BH04 and BH10 were above Table 915-1 standards during the Fourth Quarter 2022 monitoring event. Kerr-McGee will continue to evaluate POC for Table 915-1 standards on a quarterly basis, based on site-specific local background concentrations. The temporary groundwater monitoring well locations and former/active facility infrastructure locations are illustrated on Figure 1. A potentiometric surface contour map for the Fourth Quarter 2022 is presented as Figure 2. Well completion logs for the temporary monitoring wells are provided as Attachment B.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

☒ Quarterly☐ Semi-Annually☐ Annually☐ Other

☒ Request Alternative Reporting Schedule:

☐ Semi-Annually☒ Annually☐ Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

Report Type:

☒ Groundwater Monitoring☐ Land Treatment Progress Report☐ O&M Report☐ Other

Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

KMOG has sufficient insurance and bonding to fully address the anticipated costs of Remediation, including the remaining estimated costs for this project. KMOG currently has over 40 million in bonds with the Colorado Oil and Gas Conservation Commission. The cost for remediation is a preliminary estimate only, costs may change upwards or downward based on site-specific information. KMOG makes no representation or guarantees as to the accuracy of the preliminary estimate.

Operator anticipates the remaining cost for this project to be: \$ 100000

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 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 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

If YES:

☐ Compliant with Rule 913.h.(1).

☐ Compliant with Rule 913.h.(2).

☐ Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards? No

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? No

Is additional groundwater monitoring to be conducted? Yes

Operator shall comply with the COGCC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

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 provide the seed mix? _____

If YES, does the seed mix comply with local soil conservation district recommendations? _____

Did the local soil conservation district provide the seed mix? _____

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. _____

Proposed date of completion of Reclamation. _____

IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

PRIOR DATES

Date of Surface Owner notification/consultation, if required. 04/11/2014

Actual Spill or Release date, or date of discovery. _____

SITE INVESTIGATION DATES

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

Proposed site investigation commencement. 04/10/2014

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/10/2014

Proposed date of completion of Remediation. _____

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

☐ Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

OPERATOR COMMENT

Based on the Fourth Quarter 2022 groundwater monitoring results, and the location of BH23 upgradient from the former Kerr-McGee infrastructure and apparent source area, Kerr-McGee will continue to provide annual Form 27-Supplemental updates for this site. The Project Implementation Summary is provided as Attachment C.

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: 11/03/2022

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: Kari Brown

Date: 02/22/2023

Remediation Project Number: 9246

COA Type**Description**

0 COA	

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**

403203869	FORM 27-SUPPLEMENTAL-SUBMITTED
403203911	LOGS
403203913	SITE MAP
403203919	GROUND WATER ELEVATION MAP
403203922	ANALYTICAL RESULTS
403203924	IMPLEMENTATION SCHEDULE
403203928	ANALYTICAL RESULTS

Total Attach: 7 Files

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

Agency	Approval of this Form 27 does not imply COGCC approval of the Operators determination of the source of the upstream impacts observed in BH23. The Operator of the third-party infrastructure has been contacted and a Form 27 has been requested for site investigation.	02/22/2023
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Total: 1 comment(s)