

State of Colorado Oil and Gas Conservation Commission

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Document Number:

403406231

Receive Date:

06/04/2023

Report taken by:

Alexander Ahmadian

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: <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>()</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 205 Initial Form 27 Document #: 1008388

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: <u>LOCATION</u>	Facility ID: <u>318170</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>SARATOGA-64N66W 33SWSW</u>		Latitude: <u>40.263639</u>	Longitude: <u>-104.788361</u>
		** correct Lat/Long if needed: Latitude: <u>40.263023</u>	Longitude: <u>-104.788298</u>
QtrQtr: <u>SWSW</u>	Sec: <u>33</u>	Twp: <u>4N</u>	Range: <u>66W</u>
		Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications SC Most Sensitive Adjacent Land Use Agriculture and Livestock

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

Water well located approximately 450 feet (ft) northeast, surface water located approximately 1,200 ft southwest, buildings located approximately 380 ft south, livestock located approximately 50 ft southwest, and groundwater at approximately 7 ft below ground surface (bgs).

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 Samples/Lab Analysis
Yes	SOILS	Unknown	Soil Samples/Lab Analysis

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures taken to abate, investigate, and/or remediate impacts associated with E&P Waste.

On May 20, 1994, the well operator discovered a hole in the side of an oil tank at the Saratoga 1 tank battery. Approximately 92 barrels (bbls) of crude oil were released into the bermed tank area. An unknown volume of crude oil seeped out of the tank berm onto the adjacent lease road. Approximately 40 bbls of oil were recovered from within the tank battery berm and transferred to another production tank. Basin Exploration, Inc. performed the initial site assessment in May 1994. The release was initially reported to the Colorado Oil and Gas Conservation Commission (COGCC) on August 5, 1994 via written notification.

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):

Details of the site assessment and remediation activities conducted by Basin Exploration, Inc. are summarized in a Spill Assessment and Remediation Status Report submitted to the COGCC on May 23, 1995.

In March 2005, three soil samples (MW01@12-15', MW02@12-15', and MW03@8-12') were collected from assessment soil borings MW01 through MW03 and submitted for laboratory analysis of total petroleum hydrocarbons (TPH). Laboratory analytical results indicated that the TPH concentration in soil sample MW01@12-15' exceeded the COGCC sensitive area allowable level of 1,000 milligrams per kilogram (mg/kg) at a concentration of 1,000 mg/kg. The soil samples were not analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) as the samples were collected prior to the April 1, 2009, COGCC rule changes.

Proposed Groundwater Sampling

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

Quarterly groundwater monitoring has been conducted at the site since March 2005.

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 3
Number of soil samples exceeding 915-1 1
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 0

NA / ND

-- Highest concentration of TPH (mg/kg) 5000
NA Highest concentration of SAR
BTEX > 915-1 Yes
Vertical Extent > 915-1 (in feet) 15

Groundwater

Number of groundwater samples collected 964
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 7
Number of groundwater monitoring wells installed 36
Number of groundwater samples exceeding 915-1 328

-- Highest concentration of Benzene (µg/l) 19000
-- Highest concentration of Toluene (µg/l) 230
-- Highest concentration of Ethylbenzene (µg/l) 2900
-- Highest concentration of Xylene (µg/l) 21000
NA Highest concentration of Methane (mg/l)

Surface Water

0 Number of surface water samples collected
 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?

Petroleum hydrocarbon impacts to groundwater are present in monitoring wells in the adjoining agricultural field northwest of the tank battery facility. The monitoring well locations and general site layout are depicted in the Site Map attached as Figure 1.

☐ 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.

Please refer to the Form 27 submitted to the COGCC on May 11, 2015. Details of the site assessment and remediation activities conducted by Basin Exploration, Inc. are summarized in a Spill Assessment and Remediation Status Report submitted to the COGCC on May 23, 1995.

Based on the March 2005 subsurface soil assessment, petroleum hydrocarbon impacts to soil remain in place in the vicinity of soil boring/monitoring well MW01.

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.

Remedial options are under evaluation.

Soil Remediation Summary

☐ In Situ

☐ Ex Situ

 Bioremediation (or enhanced bioremediation)

 Excavate and offsite disposal

_____ Chemical oxidation
_____ Air sparge / Soil vapor extraction
_____ Natural Attenuation
_____ Other _____

If Yes: Estimated Volume (Cubic Yards) _____
Name of Licensed Disposal Facility or COGCC Facility ID # _____
Excavate and onsite remediation
_____ Land Treatment
_____ Bioremediation (or enhanced bioremediation)
_____ Chemical oxidation
_____ Other _____

Groundwater Remediation Summary

Yes _____ Bioremediation (or enhanced bioremediation)
No _____ Chemical oxidation
No _____ Air sparge / Soil vapor extraction
Yes _____ Natural Attenuation
Yes _____ Other _____ Groundwater Removal and
Microbial/Nutrient 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.

Groundwater monitoring wells MW01R, MW02R, MW03R, MW04, MW05, MW07, MW09 through MW14, MW15R, MW17 through MW20, MW21R, and MW22 through MW32 are sampled on a quarterly basis for the full list of analyses for groundwater in Table 915-1. Cross-gradient and historically compliant groundwater monitoring well MW17 was established as a representative background sample for calculating the inorganic parameters in Table 915-1. Based on a comparison to background concentrations, point-of-compliance (POC) monitoring wells MW14, MW24, and MW28 were above the Table 915-1 standards for inorganic constituents during the First Quarter 2023 monitoring event. Kerr-McGee will continue to evaluate POC for Table 915-1 on a quarterly basis based on the site-specific local background concentrations. The monitoring well locations are depicted on Figure 1. The Groundwater Elevation Contour Map generated using the March 2023 gauging data is provided as Figure 2. The groundwater analytical results are summarized in Table 1, and the laboratory analytical reports for the June 2022, September 2022, December 2022, and March 2023 groundwater monitoring events are attached.

Groundwater monitoring will continue on a quarterly basis until a No Further Action status request is warranted.

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: \$ 150000

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

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

E&P waste (solid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

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

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 Kerr-McGee production facility remains at the site.

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. 11/30/2020

Actual Spill or Release date, or date of discovery. 05/20/1994

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 05/20/1994

Proposed site investigation commencement. 07/14/1994

Proposed completion of site investigation. 12/09/2020

REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/20/1994

Proposed date of completion of Remediation. 05/31/2027

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

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: 06/04/2023

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: Alexander Ahmadian

Date: 07/07/2023

Remediation Project Number: 205

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**

403406231	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403406798	ANALYTICAL RESULTS
403406803	ANALYTICAL RESULTS
403406804	SITE MAP
403406840	GROUND WATER ELEVATION MAP
403415342	IMPLEMENTATION SCHEDULE
403456845	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 7 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)