

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:
403372877
Receive Date:
04/28/2023

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>		
City: <u>DENVER</u>	State: <u>CO</u>	Phone: <u>(970) 515-1161</u>
	Zip: <u>80217-3779</u>	Mobile: <u>()</u>
Contact Person: <u>Phil Hamlin</u>	Email: <u>Phillip_Hamlin@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 20436 Initial Form 27 Document #: 402787685

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>323198</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>BIERIG-UPRR-64N66W 35SENE</u>	Latitude: <u>40.270239</u>	Longitude: <u>-104.737533</u>	
	** correct Lat/Long if needed: Latitude: <u>40.269559</u>	Longitude: <u>-104.737545</u>	
QtrQtr: <u>SENE</u>	Sec: <u>35</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 SM Most Sensitive Adjacent Land Use Irrigation Canal and Agriculture
 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

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 checked="" 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	To be determined	Groundwater Samples/Laboratory Analytical Results
Yes	SOILS	Data previously submitted.	Soil Samples/Laboratory Analytical Results

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 28, 2021, a release daylighting from the subsurface at the Berig 17-35 location was discovered. The impacted soil was discovered while performing a pressure test of the oil dumphline between the separator and the tank at the facility. Approximately 3 gallons of oil were released during the pressure test. The release was reported to the COGCC in the Form 19 Initial dated July 29, 2021 (Document No. 402732214). The volume of the release is unknown. The impacted soil was excavated.

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):

Between July 29, 2021 and June 2, 2022, soil samples were collected from the facility excavation (see Figure 1). The soil samples were field screened for total volatile organic compounds using a photoionization detector (PID). Based on PID readings, select soil samples were submitted for laboratory analysis in accordance with COGCC Rule 911.a. The impacted soil was excavated. Analytical results indicated soil was in full compliance with Table 915-1 standards, or below background, at the extents of the excavation.

Proposed Groundwater Sampling

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

On July 29, 2021, four groundwater samples were collected from the facility excavation and flowline potholes and submitted for Table 915-1 analyses. One background groundwater sample was also collected and submitted for Table 915-1 inorganic parameters. Based on the laboratory analytical results, samples GW01 and GW03 exceeded the COGCC Table 915-1 allowable levels for benzene, toluene, xylenes, 1,2,4-trimethylbenzene, and/or 1,3,5-trimethylbenzene. The excavation groundwater sample and background sample locations are depicted on Figure 1. The groundwater sample analytical results are summarized in Table 1.

Proposed Surface Water Sampling

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

On August 12, 2021, six ditch water samples (Ditch-01 through Ditch-06) and one surface water sample (SW-01) were collected and submitted for Table 915-1 organic parameters. Results were compared to COGCC Table 915-1 allowable levels for groundwater. All ditch water sample results were non-detect. Toluene was detected in surface water sample SW-01; however, the concentration of 2.57 ug/L is well below the Table 915-1 allowable level for groundwater of 560 ug/L. The surface water sample locations are depicted on Figure 2. The surface water analytical results are presented in Table 2.

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 98

Number of soil samples exceeding 915-1 37

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

Approximate areal extent (square feet) 19886

NA / ND

-- Highest concentration of TPH (mg/kg) 1468

-- Highest concentration of SAR 421

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 13

Groundwater

Number of groundwater samples collected 4

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 5

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 2

-- Highest concentration of Benzene (µg/l) 1480

-- Highest concentration of Toluene (µg/l) 3070

-- Highest concentration of Ethylbenzene (µg/l) 238

-- Highest concentration of Xylene (µg/l) 4560

NA Highest concentration of Methane (mg/l)

Surface Water

7 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?

Were background samples collected as part of this site investigation?

One tank battery soil background soil sample and two native soil background soil samples were collected for laboratory analysis of specific conductivity (EC), sodium adsorption ratio (SAR), pH, boron, and metals. Laboratory analytical results indicated arsenic is naturally high in the soil used to construct the tank battery and the native soil.

One background groundwater sample was also collected and submitted for Table 915-1 inorganic parameters. Laboratory analytical results indicated sulfate ion is naturally high in the native groundwater.

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?

Groundwater monitoring wells will be installed to delineate the extent and magnitude of any remaining impacts. Site access for well installation is currently under consideration. The locations of the proposed monitoring wells are shown on Figure 1.

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.

Approximately 22,828 bbls of impacted water and 140 CY of impacted soil were transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 15,620 CY of impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 20 CY of impacted soil was transported to the Front Range Landfill in Erie, Colorado for disposal. Approximately 2,500 CY of impacted soil was transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Disposal records are kept on file and are available upon request.

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.

In order to delineate the extent and magnitude of any remaining impacts, monitoring wells will be installed in the source area, cross-gradient, and downgradient from the previously-identified groundwater impacts. Site access for well installation is currently under consideration. Groundwater monitoring will be conducted on a quarterly basis.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) _____ 18280

_____ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or COGCC Facility ID # _____ 149007

_____ Natural Attenuation

No _____ Excavate and onsite remediation

_____ Other _____

_____ Land Treatment

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Other _____

Groundwater Remediation Summary

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ 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.

In order to delineate the extent and magnitude of any remaining impacts, monitoring wells will be installed in the source area, cross-gradient, and downgradient from the previously-identified groundwater impacts. Site access for well installation is currently under consideration.

Groundwater monitoring will be conducted 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: \$ _____

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 22,828 bbls of impacted water and 140 CY of impacted soil were transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 15,620 CY of impacted soil were transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 18280

E&P waste (solid) description Impacted Soil

COGCC Disposal Facility ID #, if applicable: 149007

Non-COGCC Disposal Facility: Front Range Landfill in Erie, CO (20 CY); Buffalo Ridge Landfill in Keenesburg, CO (2,500 CY)

Volume of E&P Waste (liquid) in barrels 22828

E&P waste (liquid) description Impacted Water

COGCC Disposal Facility ID #, if applicable: 434766

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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

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 will be reclaimed in accordance with COGCC 1000 Series Reclamation Rules.

Is the described reclamation complete? _____

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. 08/25/2021

Actual Spill or Release date, or date of discovery. 06/28/2021

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/28/2021

Proposed site investigation commencement. 06/28/2021

Proposed completion of site investigation. 12/31/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/28/2021

Proposed date of completion of Remediation. 12/30/2027

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

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

Signed: Phil Hamlin

Title: Sr. Environmental Rep.

Submit Date: 04/28/2023

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: 05/30/2023

Remediation Project Number: 20436

COA Type**Description**

	In accordance with Rule 914, if impacts are observed during monitoring well installation a step out monitoring well(s) shall be installed to define the horizontal extent of impacts to soil and groundwater and the monitoring wells shall be installed within 45 days of observations.
	Operator will submit a minimum of one soil sample for the proposed laboratory analysis from each soil boring advanced during monitoring well installation.
	Operator shall field log soil borings during monitoring well installation and provide boring logs/well construction diagrams with the next monitoring report. Operator shall provide boring logs in accordance with standard environmental practices. This includes at a minimum; lithology description, USCS classifications, PID readings, sample collection depths, depth to water, and well construction.
	Proposed monitoring well locations were not attached. Please attach the proposed monitoring well locations in a following Form 27 Supplemental.
4 COAs	

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**

403372877	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403378217	ANALYTICAL RESULTS
403388269	SITE MAP
403388620	SITE MAP
403417212	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 5 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)