

State of Colorado
Energy & Carbon Management Commission

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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 ECMC 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>Phil Hamlin</u>	Email: <u>Phillip_Hamlin@oxy.com</u>	Mobile: <u>()</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 21631 Initial Form 27 Document #: 402930742

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>336104</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>ROBERTS-63N66W 22SWSE</u>	Latitude: <u>40.204620</u>	Longitude: <u>-104.761280</u>	
	** correct Lat/Long if needed: Latitude: <u>40.206634</u>	Longitude: <u>-104.760568</u>	
QtrQtr: <u>SWSE</u>	Sec: <u>22</u>	Twps: <u>3N</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 Agriculture
Is domestic water well within 1/4 mile? No Is surface water within 1/4 mile? No
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	See attached data	Groundwater Samples/Laboratory Analytical Results
Yes	SOILS	145ft NS x 130ft E-W x 13ft bgs	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 March 22, 2022, upon receipt of the laboratory analytical report for samples collected on March 21, 2022, historically impacted soil was discovered at the PWV. The release was reported to the Energy and Carbon Management Commission (ECMC), in the Form 19 Initial dated March 24, 2022 (Document No. 402992012). The volume of the release is unknown.

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 March 21 and October 6, 2022, soil samples were collected from the AST, PWV, ECD, meter house, separator, and ancillary piping (Figure 1). The samples were field screened for total volatile organic compounds using a photoionization detector (PID). Based on PID readings, select soil samples were submitted for analysis. The impacted soil was excavated. Analytical results indicated soil was in full compliance with Table 915-1 standards or the analytical variability of background at the extents of the excavations except for arsenic which will be addressed during groundwater sampling. Therefore, further excavation was not warranted.

Proposed Groundwater Sampling

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

On April 8, 2022, two groundwater samples were collected from the facility excavations and submitted for Table 915-1 analyses. Two background groundwater samples were also collected and submitted for Table 915-1 inorganic analyses. Based on the laboratory analytical results, both GW01 and PH02-GW01 exceeded the ECMC Table 915-1 allowable levels and/or background for 1,2,4-trimethylbenzene and/or total dissolved solids. The excavation groundwater sample locations and background groundwater sample locations are depicted on Figure 1. The groundwater sample analytical results are summarized in Table 2A.

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 101

Number of soil samples exceeding 915-1 48

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 5266

NA / ND

-- Highest concentration of TPH (mg/kg) 105.9

-- Highest concentration of SAR 1.27

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 13

Groundwater

Number of groundwater samples collected 28

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 4

Number of groundwater monitoring wells installed 8

Number of groundwater samples exceeding 915-1 5

ND Highest concentration of Benzene (µg/l) _____

-- Highest concentration of Toluene (µg/l) 2.72

-- Highest concentration of Ethylbenzene (µg/l) 52.2

-- Highest concentration of Xylene (µg/l) 36.4

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?

Were background samples collected as part of this site investigation?

One tank battery background sample and eight native soil background soil samples were collected and submitted for laboratory analysis of pH, specific conductivity (EC), sodium adsorption ration (SAR), boron, and metals. Laboratory analytical results indicate that arsenic, barium, and selenium are naturally high in the native soil.

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?

Quarterly groundwater monitoring of the newly-installed well network was initiated on July 28, 2023. Point of compliance (POC) will continue to be evaluated after additional rounds of sampling have been completed.

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 7,761 bbls of impacted water were transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 200 cubic yards (CY) of impacted soil were transported to the Front Range Landfill in Erie, Colorado for disposal. Approximately 6,828 CY of impacted soil were transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Disposal records are kept on file and available upon request.

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.

Quarterly groundwater monitoring of the newly-installed well network was initiated on July 28, 2023. Analytical results from all monitoring wells indicated that total dissolved solids (TDS) and/or sulfate ion concentrations exceeding the ECMC allowable levels and background levels are present at the MW06 and MW07 locations during the July 2023 and/or October 2023 monitoring events. All results for Table 915-1 organic constituents were below the laboratory reporting limit and ECMC allowable levels. POC will continue to be evaluated after additional rounds of sampling have been completed.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 7028

_____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____

_____ 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.

Groundwater monitoring wells MW01 through MW08 are being sampled on a quarterly basis for the full list of analytes for groundwater in Table 915-1 constituents and dissolved arsenic. Cross-gradient and historically compliant groundwater monitoring well MW06 was established as a representative background sample for calculating the inorganic parameters in Table 915-1. All dissolved arsenic concentrations collected during the January 2024 monitoring event were below the Water Quality Control Commission Regulation 41 allowable level. The monitoring well locations are depicted on Figure 1. The Groundwater Elevation Contour Map generated using the January 2024 survey data is provided as Figure 2. The groundwater analytical results are summarized in Tables 2A and 2B, and the laboratory analytical report for the January 2024 groundwater monitoring event is 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 Energy and Carbon Management 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: \$ 35000

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 7,761 bbls of impacted water were transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 7028

E&P waste (solid) description Impacted Soil

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Front Range Landfill in Erie, CO (200 CY), Buffalo Ridge Landfill in Keenesburg, CO (6828 CY)

Volume of E&P Waste (liquid) in barrels 7761

E&P waste (liquid) description Impacted Water

ECMC Disposal Facility ID #, if applicable: 434766

Non-ECMC 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 ECMC 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 ECMC 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. 03/22/2022

Actual Spill or Release date, or date of discovery. 03/22/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/21/2022

Proposed site investigation commencement. 03/21/2022

Proposed completion of site investigation. 12/31/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/21/2022

Proposed date of completion of Remediation. 12/31/2027

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

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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: Senior Environmental Rep.

Submit Date: 03/26/2024

Email: Phillip_Hamlin@oxy.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with ECMC Rules and applicable orders and is hereby approved.

ECMC Approved: Alexander Ahmadian

Date: 04/29/2024

Remediation Project Number: 21631

COA Type**Description**

0 COA	

ATTACHMENT 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**

403717345	FORM 27-SUPPLEMENTAL-SUBMITTED
403717418	SITE MAP
403717420	GROUND WATER ELEVATION MAP
403717421	ANALYTICAL RESULTS
403722482	ANALYTICAL RESULTS
403722484	ANALYTICAL RESULTS

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)