

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Grace Rollins

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 ECOM 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) 515-1161</u>
City: <u>DENVER</u> State: <u>CO</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 #: 9670 Initial Form 27 Document #: 200439560

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: Monitoring Well Reduction Request

SITE INFORMATION

Yes Multiple Facilities

Facility Type: <u>LOCATION</u>	Facility ID: <u>318952</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>WARNER-62N66W 24NWNE</u>	Latitude: <u>40.128030</u>	Longitude: <u>-104.720690</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWNE</u>	Sec: <u>24</u>	Twp: <u>2N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <input type="checkbox"/> Yes

SITE CONDITIONS

General soil type - USCS Classifications SC Most Sensitive Adjacent Land Use Non-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? No

Other Potential Receptors within 1/4 mile

A livestock pen is located approximately 1,075 feet northwest of the release location. A building is located approximately 1,125 feet northwest 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	70' (N-S) x 60' (E-W) x 26' bgs	Soil boring, 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.

Between March 13 and 15, 2013, a Limited Phase II Site Assessment was conducted at the Warner 1 production facility. Historical petroleum hydrocarbon impacts to soil and groundwater were discovered during this investigation, and groundwater was encountered in soil borings at approximately 26 feet below ground surface (bgs). The Energy and Carbon Management Commission (ECMC) has issued Spill/Release Point ID 2232616 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):

Between March 2013 and April 2014, soil samples were collected during the Limited Phase II Site Assessment and subsequent soil boring activities, as described in the Initial Form 27 (ECMC Doc. No. 2526257). Based on the subsurface soil assessment, impacted soil remained at the site adjacent to soil boring locations SB02, SB03, and SB07.

Between September 11 and October 23, 2019, the impacted soil was excavated. Sixty-two soil samples were collected from the excavation for analysis of total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and naphthalene. The base soil samples were also analyzed for pH, specific conductivity (EC), and sodium adsorption ratio (SAR). Laboratory results indicated the samples were in full compliance with applicable ECMC standards at the time of excavation at the extent of the excavation.

Proposed Groundwater Sampling

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

Between March 13, 2013 and February 11, 2019, twenty-three (23) temporary monitoring wells (SB01 - SB18, SB03R, SB04R, SB04R2, SB05R, SB06R) were installed to assess the extent of groundwater impacts. Quarterly groundwater monitoring was initiated on August 5, 2013. The groundwater monitoring wells were removed from the site prior to the September 2019 excavation activities and reinstalled in May and June 2020 following completion of excavation activities. Groundwater monitoring resumed on a quarterly basis in June 2020.

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		NA / ND	
Number of soil samples collected	79	--	Highest concentration of TPH (mg/kg) 3309
Number of soil samples exceeding 915-1	9	--	Highest concentration of SAR 37.77
Was the areal and vertical extent of soil contamination delineated?	No		BTEX > 915-1 No
Approximate areal extent (square feet)	15300		Vertical Extent > 915-1 (in feet) 30
Groundwater			
Number of groundwater samples collected	679	--	Highest concentration of Benzene (µg/l) 730
Was extent of groundwater contaminated delineated?	No	--	Highest concentration of Toluene (µg/l) 31
Depth to groundwater (below ground surface, in feet)	29	--	Highest concentration of Ethylbenzene (µg/l) 1160
Number of groundwater monitoring wells installed	47	--	Highest concentration of Xylene (µg/l) 12700
Number of groundwater samples exceeding 915-1	322	NA	Highest concentration of Methane (mg/l)
Surface Water			
0	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?

Soil impacts have been identified in off-site soil borings SB02 and SB07. Impacted groundwater has been detected in off-site temporary groundwater monitoring wells SB02, SB04R, SB07, SB08, and SB10 through SB12.

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?

Per the condition of approval (COA) issued by the ECMC, a soil assessment will be conducted to evaluate soil under Table 915-1.

Point of compliance (POC) monitoring wells SB13, SB23, and SB24 have often exceeded the ECMC Table 915-1 allowable levels and background levels. Additional monitoring wells will be installed downgradient to establish POC. The proposed monitoring well locations are depicted on Figure 3.

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.

In September and October 2019, approximately 6,140 cubic yards of petroleum hydrocarbon impacted soil were excavated and transported to Buffalo Ridge Landfill in Keenesburg, Colorado, for disposal. The petroleum hydrocarbon impacted soil was excavated into the phreatic zone to address potential hydrocarbon impacts that may have been present below the current groundwater table due to seasonal fluctuations. The excavation footprint is depicted on the Site Map provided as Figure 1.

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.

Between August 4 and 8, 2014, an initial round of in-situ chemical oxidation (chemox) injections was performed at temporary monitoring wells SB02, SB03, and SB09 through SB12. Chemox injections were suspended due to formation back-pressure and oxidant surfacing at SB03 and SB09. In the fourth quarter of 2014, light non-aqueous phase liquid (LNAPL) was observed in well SB07. A passive LNAPL recovery bailer was installed in well SB07; bi-weekly LNAPL gauging and recovery events were initiated on December 3, 2014 and ended prior to 2019 excavation activities. Approximately 1.8 gallons of LNAPL were removed from temporary monitoring well SB07 via LNAPL bailing.

Soil Remediation Summary

<input checked="" type="checkbox"/> In Situ	<input checked="" type="checkbox"/> Ex Situ
<u> </u> No Bioremediation (or enhanced bioremediation)	<u> </u> Yes Excavate and offsite disposal
<u> </u> Yes Chemical oxidation	<u> </u> If Yes: Estimated Volume (Cubic Yards) <u> </u> 6140
<u> </u> No Air sparge / Soil vapor extraction	<u> </u> Name of Licensed Disposal Facility or ECMC Facility ID # <u> </u>
<u> </u> Yes Natural Attenuation	<u> </u> No Excavate and onsite remediation
<u> </u> No Other <u> </u>	<u> </u> Land Treatment
	<u> </u> Bioremediation (or enhanced bioremediation)
	<u> </u> Chemical oxidation
	<u> </u> Other <u> </u>

Groundwater Remediation Summary

 No Bioremediation (or enhanced bioremediation)

 Yes Chemical oxidation

 No Air sparge / Soil vapor extraction

 Yes Natural Attenuation

 Yes Other LNAPL Recovery

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 SB01R, SB02R, SB03R2, SB04R3, SB05R2, SB06R2, SB07R through SB18R, and SB19 through SB24 are sampled on a quarterly basis for the full list of analyses for groundwater in Table 915-1. Historically compliant groundwater monitoring well SB01R, located upgradient from the former facility infrastructure and release area, was established as a representative background sample for calculating the inorganic parameters in Table 915-1. Based on a comparison to background concentrations, POC monitoring wells SB13, SB23 and SB24 were above the Table 915-1 standards and background levels for Table 915-1 inorganics during the February 2025 monitoring event; however, POC for organic constituents remains established. Additional monitoring wells will be installed downgradient to establish POC for inorganic constituents. The current monitoring well locations are depicted on Figure 1. The Groundwater Elevation Contour Map generated using the February 2025 survey data is provided as Figure 2. The groundwater analytical results are summarized in Table 1, and the laboratory analytical reports for the March 2024, June 2024, September 2024, December 2024, and February 2025 groundwater monitoring events are attached.

Based on groundwater analytical to date, Kerr-McGee requests the removal of groundwater monitoring wells SB05R2, SB12R, SB17R, SB18R, SB19, and SB21 from the quarterly monitoring program. Monitoring wells SB05R2, SB12R, SB17R, SB18R, SB19, and SB21 have been in full compliance with ECMC Table 915-1 allowable levels for the full list of Table 915-1 analytes since their installation and are no longer needed as point of compliance wells.

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 ECMC. 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: \$ 50000 _____

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 1.8 gallons of LNAPL were removed from temporary monitoring well SB07 via LNAPL bailing and transported to the Aggregate Recycle Facility in Weld County, Colorado.

Volume of E&P Waste (solid) in cubic yards _____ 6140

E&P waste (solid) description _____ Petroleum hydrocarbon impacted soil

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____ Buffalo Ridge Landfill in Keenesburg, Colorado

Volume of E&P Waste (liquid) in barrels _____ 1

E&P waste (liquid) description _____ Bailed LNAPL (1.8 gallons)

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 reseeded program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing.

The Kerr-McGee facility was decommissioned. The site will be reclaimed in accordance with ECMC 1000 Series Reclamation 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. 03/21/2022

Actual Spill or Release date, or date of discovery. 03/25/2013

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/13/2013

Proposed site investigation commencement. 03/13/2013

Proposed completion of site investigation. 12/31/2026

REMEDIAL ACTION DATES

Proposed start date of Remediation. 08/04/2014

Proposed date of completion of Remediation. 12/31/2026

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: 03/25/2025

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: Grace Rollins

Date: 07/16/2025

Remediation Project Number: 9670

COA Type**Description**

	ECMC agrees to the reduced groundwater monitoring program. If future data indicate the need for additional site characterization or establishing point of compliance, ECMC may require additional monitoring wells be returned to the program.
	ECMC approves of the proposed soil boring/monitoring well locations. Operator shall submit a minimum of one soil sample for laboratory analysis of complete Table 915-1 Parameters from each soil boring advanced during monitoring well installation. The sample collected will be from the interval(s) displaying the highest degree of impacts or in the absence of apparent impacts from beneath the previous excavation extent, the interval in which organic compounds were previously detected, and/or the soil-groundwater interface.
	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.
	Quarterly reporting is required until point of compliance is achieved
4 COAs	

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**

404120082	FORM 27-SUPPLEMENTAL-SUBMITTED
404128778	ANALYTICAL RESULTS
404128781	ANALYTICAL RESULTS
404128783	ANALYTICAL RESULTS
404128784	ANALYTICAL RESULTS
404128785	ANALYTICAL RESULTS
404128786	ANALYTICAL RESULTS
404128788	ANALYTICAL RESULTS
404128789	SITE MAP
404128791	SITE MAP
404128792	GROUND WATER ELEVATION MAP

Total Attach: 11 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)