

State of Colorado
Energy & Carbon Management Commission

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403964556

Receive Date:
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Report taken by:
Taylor Robinson

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) 515-1110</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80217-3779</u>		Mobile: <u>(970) 520-1272</u>
Contact Person: <u>Macy Kiel</u>	Email: <u>DJRemediation_Forms@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 27685 Initial Form 27 Document #: 403313218

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

Yes Multiple Facilities

Facility Type: <u>LOCATION</u>	Facility ID: <u>330564</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>HSR-BERRY-63N67W 8NWNE</u>	Latitude: <u>40.246206</u>	Longitude: <u>-104.912394</u>	
	** correct Lat/Long if needed: Latitude: <u>40.247438</u>	Longitude: <u>-104.914267</u>	
QtrQtr: <u>NWNE</u> Sec: <u>8</u> Twp: <u>3N</u> Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>484764</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Berry 2&7-8 O SA TB Historical Rel.</u>	Latitude: <u>40.247440</u>	Longitude: <u>-104.914458</u>	
	** correct Lat/Long if needed: Latitude: _____	Longitude: _____	
QtrQtr: <u>NENW</u> Sec: <u>8</u> Twp: <u>3N</u> Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

SITE CONDITIONS

General soil type - USCS Classifications SC

Most Sensitive Adjacent Land Use Crop land

Is domestic water well within 1/4 mile? Yes

Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

Multiple buildings and livestock holding pens are located within ¼ mile of the facility.
The nearest building is located approximately 600 feet northeast of the facility.
The nearest domestic water well is located approximately 160 feet northwest of the facility.
An area with wetland characteristics is located approximately 125 feet south of the facility.

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/laboratory analytical results
Yes	SOILS	90' (E-W) x 60' (N-S) x 19.5' bgs	Inspection/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.

Tank battery decommissioning activities were conducted at the Berry 2 & 7-8 O SA Production Facility location on June 2, 2023, as described in a previous Form 27-Supplemental update (Document No. 403610614). Laboratory analytical results indicated that soil impacts were present at the former PWV and AST locations due to benzene, ethylbenzene, TPH, PAHs, pH, and SAR results above ECMC standards and/or site-specific background levels. As such, a Form 19-Initial/Supplemental Spill/Release Report (Document No. 403423147) was submitted on June 6, 2023, and the ECMC issued Spill/Release Point ID 484764. The remaining analytical results for the soil samples collected during facility decommissioning were in compliance with Table 915-1 standards and/or site-specific background levels (x 1.25 for metals). Non-impacted groundwater was encountered during subsequent over-excavation activities at approximately 12 feet below ground surface (bgs), and a groundwater sample was collected as described in a previous Form 27-Supplemental update (Document No. 403610614).

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):

From July 3 through September 14, 2023, excavation activities were conducted to address remaining soil impacts at the former PWV and AST locations. Soil samples were collected from the base and sidewalls of the final excavation extent, as described in a previous Form 27-Supplemental update (Document No. 403610614). Analytical results indicate that constituent concentrations in the soil samples collected from the final excavation extents were in compliance with the applicable ECMC Table 915-1 standards and/or within site-specific background levels (x 1.25 for metals).

Proposed Groundwater Sampling

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

On July 3, 2023, groundwater sample PW-GW01 was collected from the excavation area and submitted for laboratory analysis of BTEX, naphthalene, 1,2,4- and 1,3,5-TMB by USEPA Method 8260D. Analytical results indicated that concentrations in groundwater sample PW-GW01 were in compliance with ECMC Table 915-1 groundwater standards. On March 26, 2024, five temporary groundwater monitoring wells (BH01 - BH05) were installed to further assess the extent of potentially remaining groundwater impacts. Quarterly groundwater monitoring was initiated on April 1, 2024, and is ongoing. Analytical results for the Third Quarter 2024 groundwater monitoring event indicated that COC concentrations were below ECMC Table 915-1 standards in all monitoring wells sampled. Groundwater analytical data is presented in Table 1; the groundwater sample locations are illustrated on Figure 1. The laboratory analytical report for the Third Quarter 2024 groundwater monitoring event is provided in Attachment A.

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 42

Number of soil samples exceeding 915-1 16

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

Approximate areal extent (square feet) 5400

NA / ND

-- Highest concentration of TPH (mg/kg) 3220

-- Highest concentration of SAR 17.9

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 19

Groundwater

Number of groundwater samples collected 11

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 7

Number of groundwater monitoring wells installed 5

Number of groundwater samples exceeding 915-1 1

-- Highest concentration of Benzene (µg/l) 2.23

ND Highest concentration of Toluene (µg/l)

-- Highest concentration of Ethylbenzene (µg/l) 112

-- Highest concentration of Xylene (µg/l) 51.8

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?

Fourteen (14) background soil samples were collected from undisturbed native material adjacent to the former production facility location, at comparable depths and soil composition to the confirmation soil samples, as described in a previous Form 27-Supplemental update (Document No. 403610614).

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 groundwater was identified at temporary monitoring well BH04 during the initial Second Quarter 2024 monitoring event, due to the 1,3,5-TMB concentration above ECMC Table 915-1 groundwater standards. As such, additional temporary monitoring wells may be installed to establish points-of-compliance (POC) down/cross-gradient of BH04. However, during the Third Quarter 2024 monitoring event, COC concentrations were below Table 915-1 standards. The temporary groundwater monitoring wells will continue to be sampled on a quarterly basis and submitted for laboratory analysis of the Table 915-1 organic constituents (BTEX, naphthalene, 1,2,4- and 1,3,5- TMB), as approved by the ECMC in a previous Form 27-Supplemental update (Document No. 403610614).

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.

On July 3 through September 14, 2023, approximately 3,710 cubic yards of impacted material were removed from the PWV/AST excavation area and transported to the Front Range Landfill in Erie, Colorado for disposal. Following the collection of groundwater sample PW-GW01, approximately 1,680 barrels of non-impacted groundwater were removed from the PWV/AST excavation area via vacuum truck, for sidewall stability and backfill management purposes, and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling. The excavation area was subsequently backfilled and contoured to match pre-existing site conditions.

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.

Laboratory analytical results indicate that impacted soils in the PWV/AST excavation area have been remediated to be in compliance with the ECMC Table 915-1 standards and/or within site-specific background levels (x 1.25 for metals). Quarterly groundwater monitoring is ongoing and will be continued until concentrations remain in compliance with the ECMC Table 915-1 standards. Analytical results for the Third Quarter 2024 groundwater monitoring event indicated that COC concentrations were below ECMC Table 915-1 standards in all monitoring wells sampled. Estimated time to attain NFA is Second Quarter 2025 if COC concentrations continue to remain below ECMC Table 915-1 standards.

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) _____ 3710
_____ 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.

On March 26, 2024, 5 temporary groundwater monitoring wells (BH01 - BH05) were installed to further assess the extent of potentially remaining groundwater impacts. Quarterly groundwater monitoring was initiated on April 1, 2024, and is ongoing. The temporary groundwater monitoring wells will continue to be sampled on a quarterly basis and submitted for laboratory analysis of the Table 915-1 organic constituents (BTEX, naphthalene, 1,2,4- and 1,3,5- TMB), as approved by the ECMC in a previous Form 27-Supplemental update (Document No. 403610614). Analytical results for the Third Quarter 2024 groundwater monitoring event indicated that COC concentrations were below ECMC Table 915-1 standards in all monitoring wells sampled. The temporary groundwater monitoring well locations are illustrated on Figure 1, and a potentiometric surface contour map for the Third Quarter 2024 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 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: \$ 45000 _____

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 1,680 barrels of non-impacted groundwater were removed from the PWV/AST excavation area via vacuum truck and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards _____ 3710

E&P waste (solid) description _____ Impacted soil _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____ Front Range Landfill - Erie, Colorado

Volume of E&P Waste (liquid) in barrels _____ 1680

E&P waste (liquid) description _____ Non-impacted groundwater

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? 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 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. Timeliness of reclamation initiation and completion will be subject to NFA, surface owner discretion and land use, and suitable ground conditions which allow for execution of surface reclamation activities so as to not cause unwarranted damages.

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? Yes

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

Did the local soil conservation district provide the seed mix? No

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. 11/30/2025

Proposed date of completion of Reclamation. 12/31/2025

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. 06/05/2023

Actual Spill or Release date, or date of discovery. 06/05/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/02/2023

Proposed site investigation commencement. 06/02/2023

Proposed completion of site investigation. 03/26/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 07/03/2023

Proposed date of completion of Remediation. 07/31/2025

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 data presented herein, POC has been established at BH04. As such, KMOG is requesting annual reporting for this location. The Project implementation summary is provided in attachment C.

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

Signed: Macy Kiel

Title: Environmental Engineer

Submit Date: 10/24/2024

Email: DJRemediation_Forms@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: Taylor Robinson

Date: 12/26/2024

Remediation Project Number: 27685

COA Type**Description**

	With POC established, ECMC agrees to the amended groundwater monitoring program. If future data indicates the need for more frequent sampling, ECMC may require the site to return to quarterly monitoring.
1 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**

403964556	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403969261	ANALYTICAL RESULTS
403969262	LOGS
403969263	IMPLEMENTATION SCHEDULE
403969265	GROUND WATER SAMPLE LOCATION
403969268	GROUND WATER ELEVATION MAP
403969269	ANALYTICAL RESULTS
404040382	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 8 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)