

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Nick Cholas

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>()</u>
Contact Person: <u>Macy Kiel</u>	Email: <u>DJRemediation_Forms@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 27571 Initial Form 27 Document #: 403299781

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>WELL</u>	Facility ID: _____	API #: <u>123-22605</u>	County Name: <u>WELD</u>
Facility Name: <u>SHUTT 20-34</u>	Latitude: <u>40.265330</u>	Longitude: <u>-104.758710</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWSE</u>	Sec: <u>34</u>	Twp: <u>4N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>484372</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Shutt 20-34 Wellhead</u>	Latitude: <u>40.265330</u>	Longitude: <u>-104.758710</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWSE</u>	Sec: <u>34</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 Surface Water

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

Platte Valley Ditch located approximately 500 feet (ft) to the south; Livestock approximately 800 ft to the southwest; Agriculture approximately 500 ft to the south; Water well located approximately 1,200 ft to the southeast; Groundwater approximately 1 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
No	GROUNDWATER	See attached data.	Groundwater Samples/Laboratory Analytical Results
Yes	SOILS	Previously reported.	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.

Wellhead cut and cap operations were completed at the Shutt 20-34 wellhead on April 18, 2023. Groundwater was encountered in the wellhead cut and cap excavation. Visual inspection and field screening of soils around the wellhead and associated pumping equipment was conducted following cut and cap operations, and a soil sample was collected from the base of the excavation (B01@6'-WP). The sample was submitted for analysis of full list Table 915-1 constituents, due to the field indication of impact, to determine if a release occurred. Laboratory analytical results indicated that 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene impacts exceeding the ECMC Table 915-1 allowable levels were present at the former wellhead location. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403380056) was submitted on April 21, 2023 and the ECMC issued Spill/Release Point ID 484372. The flowline associated with the wellhead was removed between April 18, 2023 and April 4, 2024 and samples were collected from the locations where the flowline risers were disconnected from the wellhead (WH-Riser@5') and from the separator (SEP01-RISER@4'), from where the flowline changed direction (FL01@3', FL03@4', FL09@3', and FL10@3') and from where groundwater was encountered in a flowline pothole (FL02@3'). Sample WH-Riser@5' was submitted for analysis of full list Table 915-1 constituents due to the presence of impacts at the wellhead. The remaining samples were submitted for analysis of reduced list Table 915-1 constituents, as approved in Form 27 Initial dated January 25, 2023 (Document No. 403299781), to determine if a release occurred. Analytical results indicated that constituent concentrations were within the ECMC Table 915-1 allowable levels or site-specific background levels. The wellhead excavation is depicted on Figure 1.

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 April 18 and May 8, 2023, excavation activities were conducted to address the soil impacts at the wellhead and confirmation soil samples were collected from the base and sidewalls of the final excavation extents at approximately 7 ft and 5 ft bgs, respectively. The samples were submitted for analysis of the site-specific waste profile, including total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, xylenes (BTEX), 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, polycyclic aromatic hydrocarbons (PAHs), pH, boron, and select Table 915-1 metals, using ECMC-approved methods. Laboratory analytical results indicated that all concentrations were within the ECMC Table 915-1 allowable levels or background levels at the final excavation extents. The PID readings and soil sample results are summarized in Tables 1 and 2, respectively.

Proposed Groundwater Sampling

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

Groundwater was encountered in the wellhead cut and cap excavation and flowline potholes at depths ranging from 1 to 5 ft bgs. One groundwater sample (WH-GW01) was submitted for laboratory analysis of full list Table 915-1 constituents, due to the presence of soil impacts at the wellhead. Three groundwater samples (FL01@3'-GW, FL02-GW@1', and SEP-RISERGW@5') were collected for analysis of Table 915-1 organic constituents. Laboratory analytical results indicate that groundwater is in compliance with ECMC Table 915-1 standards. The wellhead excavation groundwater sample location is depicted on Figure 1. The groundwater sample analytical results are summarized in Table 3.

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):

On April 18, 2023, visual inspection and/or field screening of soils were conducted at four sidewall locations within the cut and cap excavation area and four locations at the ground surface adjacent to the excavation. Based on the inspection and screening results, hydrocarbon-impacted soil was not observed at the screening locations, and no soil samples were submitted for laboratory analysis from these areas, in accordance with the ECMC Operator Guidance. A photographic log is attached.

On April 24, 2023, a soil gas survey was conducted at 5 soil vapor points (SVPs) installed adjacent to the former wellhead location following cut and cap operations. Trace methane was detected by the GEM 5000 gas meter at SVP02. Soil gas samples were submitted to Isotech Laboratories for gas composition and isotopic analysis. Analytical results indicated that no thermogenic gas (C2-C5) was present.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil		NA / ND	
Number of soil samples collected	25	--	Highest concentration of TPH (mg/kg) 410
Number of soil samples exceeding 915-1	18	--	Highest concentration of SAR 23.7
Was the areal and vertical extent of soil contamination delineated?	No		BTEX > 915-1 No
Approximate areal extent (square feet)	1891		Vertical Extent > 915-1 (in feet) 7
Groundwater			
Number of groundwater samples collected	4	ND	Highest concentration of Benzene (µg/l)
Was extent of groundwater contaminated delineated?	Yes	ND	Highest concentration of Toluene (µg/l)
Depth to groundwater (below ground surface, in feet)	5	--	Highest concentration of Ethylbenzene (µg/l) 2.27
Number of groundwater monitoring wells installed	5	--	Highest concentration of Xylene (µg/l) 3.18
Number of groundwater samples exceeding 915-1	0	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?

Six background soil samples (Native-BG01@3' through Native-BG03@3' and Native-BG01@6' through Native-BG03@6') were collected from native material adjacent to the wellhead cut and cap excavation. The background soil samples were submitted for laboratory analysis of pH, EC, SAR, boron, and metals using ECMC-approved methods. Laboratory analytical results indicate that SAR, pH, and arsenic are naturally high in the native soil. Analytical results from the background soil samples are presented in Table 2.

One background groundwater sample (BG-GW01) was submitted for laboratory analysis of Table 915-1 inorganic constituents. The groundwater sample analytical results are summarized in Table 3.

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?

Based on the groundwater monitoring condition of approval (COA) that was issued by the ECMC for the previous Form 27-Supplemental (Document No. 403661548), groundwater monitoring wells were installed at the site on October 18, 2024 to continue monitoring clean groundwater conditions.

One soil sample was collected from each soil boring advanced outside of the excavation fill material. Based on analytical results, additional soil assessment is needed and will be conducted following the completion of groundwater monitoring activities so as to not damage or destroy the existing groundwater monitoring wells. Additional monitoring wells will be installed cross-gradient, downgradient, and upgradient of MW03 due to the soil exceedances. The proposed monitoring wells are depicted 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 424 barrels of non-impacted groundwater were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 340 cubic yards of impacted soil were removed from the site and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Disposal records are kept on file and are available upon request. The wellhead cut and cap excavation area has been backfilled and contoured to match pre-existing conditions.

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.

Laboratory data indicate that impacted soil in the wellhead cut and cap excavation area has been remediated to be within the ECMC Table 915-1 allowable levels or site-specific background levels. Laboratory analytical results indicate that current groundwater conditions at the site are in compliance with ECMC Table 915-1 standards.

Based on the groundwater monitoring COA that was issued by the ECMC for the previous Form 27-Supplemental (Document No. 403661548), groundwater monitoring wells were installed at the site on October 18, 2024 to continue monitoring clean groundwater conditions.

Per an additional COA issued by the ECMC for Document No. 403661548, one soil sample was collected from each soil boring advanced outside of the excavation fill material. Based on analytical results, 1-methylnaphthalene and SAR impacts exceeding the ECMC Table 915-1 allowable levels or background levels are present at the SB03/MW03 location. Additional soil assessment and/or excavation activities are needed to address the exceedances and will be conducted following the completion of groundwater monitoring activities so as to not damage or destroy the existing groundwater monitoring wells. Additional monitoring wells will be installed cross-gradient, downgradient, and upgradient of MW03 due to the soil exceedances. The proposed monitoring wells are depicted on Figure 1. The monitoring well locations are depicted on Figure 1. The soil analytical results are summarized in Table 2. The boring logs and laboratory analytical report are attached.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 340

_____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or ECMC 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.

Groundwater monitoring at MW01 through MW05 is now being conducted on a quarterly basis for full list Table 915-1 constituents in groundwater. Upgradient and compliance monitoring well MW05 was used as the local background for determining Table 915-1 inorganic compliance. Based on the fourth quarter monitoring results, all wells are in compliance with full list Table 915-1 constituents in groundwater. A groundwater elevation contour map generated using the November 2024 survey data is included as Figure 2. The laboratory analytical report from the November 2024 groundwater monitoring event is attached.

Additional monitoring wells will be installed cross-gradient, downgradient, and upgradient of MW03 due to the soil exceedances. The proposed monitoring wells are depicted on Figure 1.

Groundwater monitoring will continue on a quarterly basis until No Further Action (NFA) 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: \$ 14500 _____

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 424 barrels of non-impacted groundwater were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 340 cubic yards of impacted soil were removed from the site and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards _____ 340

E&P waste (solid) description Impacted Soil

ECMC Disposal Facility ID #, if applicable: _____ 149007

Non-ECMC Disposal Facility: _____

Volume of E&P Waste (liquid) in barrels _____ 424

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? No

Does the previous reply indicate consideration of background concentrations? _____

Does Groundwater meet Table 915-1 standards? Yes

Is additional groundwater monitoring to be conducted? _____

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. 04/21/2023

Actual Spill or Release date, or date of discovery. 04/21/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/18/2023

Proposed site investigation commencement. 04/18/2023

Proposed completion of site investigation. 06/12/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/18/2023

Proposed date of completion of Remediation. 03/11/2026

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

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

Signed: Macy Kiel

Title: HSE Advisor

Submit Date: 12/17/2024

Email: DJRemediation_Forms@oxy.com

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

ECMC Approved: Nick Cholas

Date: 03/04/2025

Remediation Project Number: 27571

COA Type

Description

	Operator will continue quarterly reporting until the site investigation is complete and Table 915-1 standards are met within the remediation area.
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.

<u>Att Doc Num</u>	<u>Name</u>
404027271	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
404027282	LOGS
404027283	ANALYTICAL RESULTS
404027284	ANALYTICAL RESULTS
404027289	GROUND WATER ELEVATION MAP
404027846	ANALYTICAL RESULTS
404031534	SITE MAP
404115529	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 8 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)