

State of Colorado
Energy & Carbon Management Commission

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Document Number:
404165797
Receive Date:
06/17/2025

Report taken by:
Laurel Anderson

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: KERR MCGEE OIL & GAS ONSHORE LP	Operator No: 47120	Phone Numbers Phone: (713) 350-4906 Mobile: ()
Address: P O BOX 173779		
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Ariana Ochoa	Email: DJRemediation_Forms@oxy.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 21228 Initial Form 27 Document #: 402901726

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: WELL	Facility ID: _____	API #: 123-16299	County Name: WELD
Facility Name: ARNDT 28-4P	Latitude: 40.113498	Longitude: -104.673815	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWNW	Sec: 28	Twp: 2N	Range: 65W Meridian: 6 Sensitive Area? Yes
Facility Type: FLOWLINE	Facility ID: 480679	API #: _____	County Name: WELD
Facility Name: Roland X 28-3 & 28-4 battery	Latitude: 40.116506	Longitude: -104.675791	
** correct Lat/Long if needed: Latitude: 40.116563		Longitude: -104.675552	
QtrQtr: NWNW	Sec: 28	Twp: 2N	Range: 65W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SP

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

The nearest domestic water well is located approximately 30 feet east of the wellhead.

SITE INVESTIGATION PLAN

DENIED

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	Groundwater not encountered	Inspection/soil samples/laboratory analytical results
No	SOILS	No hydrocarbon impacts observed	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.

Wellhead cut and cap operations were completed at the Arndt 28-4P wellhead on January 25, 2022. Groundwater was not encountered in the wellhead cut and cap excavation area. Visual inspection and field screening of soils around the well and associated pumping equipment was conducted following wellhead cut and cap operations, and soil sample (WH-B01@6') was submitted for laboratory analysis to determine if a release occurred. Laboratory analytical results indicated that constituent concentrations in the soil samples were compliant with Table 915-1 and/or within background limits, with the exception to the pH value in soil sample (WH-B01@6'). At the time of initial sampling, the pH exceedance in (WH-B01@6') was believed to be within the acceptable range of analytical variability. Per the COA received on a previous Form 27-Supplemental (Doc. No 403035900) denying the application of analytical variability of the pH exceedance in (WH-B01@6'), a verification soil sample (B01V@6') was collected to verify the exceedance and submitted for laboratory analysis of pH. Analytical results indicated the verification sample (B01V@6') and all samples were compliant with ECMC Table 915-1 and/or within site specific background limits. The flowline associated with this wellhead was removed on January 25 - February 7, 2022. Soil samples were collected from the locations where the flowline risers were disconnected at the wellhead (FL-B01@4') and separator (FL-B05@3') and submitted for laboratory analysis to determine if a release occurred. Soil sample location and field screening data are presented in Table 1. The wellhead soil sample and field screening locations are illustrated on Figure 2. The flowline soil sample and field screening locations are illustrated on Figure 3.

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 January 25, 2022 - July 25, 2024 soil samples were collected from the base of the cut and cap excavation area (WH-B01@6', B01V@6) and from locations where the flowline risers were disconnected at the wellhead (FL-B01@4') and separator (FL-B05@3'). Samples were submitted for laboratory analysis of BTEX, naphthalene, and TPH using standard methods (approved Doc. 402901726). Additionally, sample WH-B01@6' was submitted for laboratory analysis of pH, EC, SAR, and boron using ECMC-approved methods. Analytical results indicated that constituent concentrations in the soil samples were compliant with Table 915-1, with exception of the pH value in WH-B01@6'. Verification sample (B01V@6') was submitted for laboratory analysis to verify the pH exceedance. Analytical results indicated verification sample (B01V@6') and all samples were compliant with ECMC Table 915-1 and/or within site specific background limits. Soils results are summarized in Tables 2-5.

Proposed Groundwater Sampling

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

Groundwater was not encountered during wellhead cut and cap or flowline removal operations.

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 January 25 - February 7, 2022, visual inspection and field screening of soils was conducted at 4 sidewall locations in the cut and cap excavation, 4 locations at the ground surface adjacent to the excavation, and 24 locations during flowline removal activities. Based on the inspection and screening results, hydrocarbon-impacted soil was not observed, and no soil samples were submitted for laboratory analysis in accordance with ECMC Operator Guidance. On January 31, 2022, a soil gas survey was conducted at 5 soil vapor points (SVP01 - SVP05) installed adjacent to the former wellhead location following cut and cap operations. GEM 5000 field readings were non-detect for methane at all 5 soil vapor points. Soil analytical results are summarized in Tables 2 - 4. The SVP locations are illustrated on Figure 2. SVP screening results are summarized in Table 5.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 4
Number of soil samples exceeding 915-1 2
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 0

NA / ND

ND Highest concentration of TPH (mg/kg) _____
-- Highest concentration of SAR 3.47
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 6

Groundwater

Number of groundwater samples collected 0
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) _____
Number of groundwater monitoring wells installed _____
Number of groundwater samples exceeding 915-1 _____

Highest concentration of Benzene (µg/l) _____
Highest concentration of Toluene (µg/l) _____
Highest concentration of Ethylbenzene (µg/l) _____
Highest concentration of Xylene (µg/l) _____
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?

Background soil samples WH-BG01@3'-WH-BG04@3', WH-BG01@6'-WH-BG04@6', BG05@3-BG08@3, BG05@6-BG08@6, BG05@12-BG08@12 were collected from native material with comparable depths, lithology, and land use adjacent to the wellhead cut and cap excavation. Background samples from UPRR 38 PAN AM T TRUE 1 WELLHEAD (WH-BG01@3'-WH-BG04@6') were collected approximately 1 mile away, from similar depths (3'-6' bgs), and from similar NRCS soil type (sand), similar hydrologic conditions and similar land use. These samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters using standard methods appropriate for detecting the target analytes in Table 915-1. Background soil samples BG05@3-BG08@3, BG05@6-BG08@6, BG05@12-BG08@12 were submitted for laboratory analysis of Soil Suitability for Reclamation Parameters and Table 915-1 Metals. The background sample analytical results are summarized in Tables 3 and 4. Their locations are depicted in Figures 2, 4, 5 and 6.

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?

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.

Laboratory results indicate that constituent concentrations in the soil samples collected from the base of the wellhead cut and cap excavation area (WHB01V@6'), from the locations where the flowline risers were disconnected at the wellhead (FL-B01@3') and separator (FL-B05@3') were in compliance with the ECOM Table 915-1 standards and/or within site specific background limits. The cut and cap excavation will be backfilled and contoured to match preexisting site conditions.

REMIATION 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 results indicate that constituent concentrations in the soil samples collected from the base of the wellhead cut and cap excavation area (WHB01@6'), from the locations where the flowline risers were disconnected at the wellhead (FL-B01@3') and separator (FL-B05@3') were in compliance with the ECMC Table 915-1 standards and/or within site specific background limits. The cut and cap excavation will be backfilled and contoured to match preexisting site conditions. Groundwater was not encountered in the wellhead cut and cap or flowline removal pothole excavation areas. Based on the analytical and soil screening data presented herein, assessment is complete at this site and no further activities are required. As such, Kerr-McGee is requesting a No Further Action (NFA) determination for this location.

Soil Remediation Summary

In Situ

Ex Situ

- _____ Bioremediation (or enhanced bioremediation)
- _____ Chemical oxidation
- _____ Air sparge / Soil vapor extraction
- _____ Natural Attenuation
- _____ Other _____

- _____ Excavate and offsite disposal
- _____ If Yes: Estimated Volume (Cubic Yards) _____
- _____ Name of Licensed Disposal Facility or ECMC Facility ID # _____
- _____ Excavate and onsite remediation
- _____ 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.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other _____

Request Alternative Reporting Schedule:

Semi-Annually Annually Other Final Report _____

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 NFA Request _____

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: \$ 0 _____

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No _____

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

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

E&P waste (solid) description _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

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

E&P waste (liquid) description _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes _____

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? 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. 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. 06/30/2025

Proposed date of completion of Reclamation. 07/30/2026

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. 09/22/2021

Actual Spill or Release date, or date of discovery. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 01/25/2022

Proposed site investigation commencement. 01/25/2022

Proposed completion of site investigation. 07/25/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. _____

Proposed date of completion of Remediation. _____

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

In response to the COA from Doc # 404165797, a verification sample at WH-B01@6' was taken and submitted for analysis of pH. Laboratory analytical results indicated that the sample was compliant with ECMC Table 915-1 and/or within site-specific background limits. Based on the analytical and soil screening data provided herein, assessment is complete and Kerr-McGee is requesting an NFA determination for this location.

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

Signed: Ariana Ochoa

Title: Senior HSE Advisor

Submit Date: 06/17/2025

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: _____

Date: _____

Remediation Project Number: 21228

COA Type**Description**

0 COA	
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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**

404165797	FORM 27 DENIED
404176164	ANALYTICAL RESULTS
404176166	ANALYTICAL RESULTS
404176167	ANALYTICAL RESULTS
404176168	ANALYTICAL RESULTS
404243743	SITE MAP
404243755	SOIL SAMPLE LOCATION MAP
404243760	SOIL SAMPLE LOCATION MAP
404243766	SOIL SAMPLE LOCATION MAP
404243772	SOIL SAMPLE LOCATION MAP
404244009	ANALYTICAL DATA SUMMARY TABLE(S)
404244045	PHOTO DOCUMENTATION
404512347	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 13 Files

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

Environmental	ECMC has denied this form without technical review as soil samples were taken over a mile away in a different soil type and a different crop.	01/20/2026
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Total: 1 comment(s)