

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Candice (Nikki) Graber

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>(713) 350-4906</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80217-3779</u>		Mobile: <u>()</u>
Contact Person: <u>Ariana Ochoa</u>	Email: <u>DJRemediation_Forms@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 28992 Initial Form 27 Document #: 403359773

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>123-38231</u>	County Name: <u>WELD</u>
Facility Name: <u>HOWARD 25C-22HZ</u>	Latitude: <u>40.016225</u>	Longitude: <u>-104.874937</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSE</u>	Sec: <u>27</u>	Twp: <u>1N</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>484648</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Howard 25C-22HZX Hist. Release</u>	Latitude: <u>40.016233</u>	Longitude: <u>-104.874955</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSE</u>	Sec: <u>27</u>	Twp: <u>1N</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? No 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 wellhead.
The nearest building is located approximately 775 feet southwest of the wellhead.

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	No impacts encountered	Groundwater samples/laboratory analytical results
Yes	SOILS	20' (N-S) x 18' (E-W) x 10' 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.

Wellhead cut and cap operations were completed at the Howard 25C-22HZX wellhead on June 12, 2023. The flowline risers associated with this wellhead were removed on June 12 and 13, 2023. Groundwater was not encountered in the cut and cap excavation area or flowline riser removal potholes. Soil samples were collected during cut and cap and flowline riser removal activities, as described in a previous Form 27-Supplemental (Document No. 403528694). The remaining portion of the Howard 25C-22HZX flowline was abandoned in place due to operational restrictions and safety concerns associated with additional active flowlines remaining in the same corridor. The remaining portion of flowline will be removed at a later date. The soil samples were submitted for laboratory analysis of BTEX, TPH, TMB, naphthalene, pH, EC, SAR, and boron, in accordance with the approved Form 27-Initial (Document No. 403359773). Based on PID readings and preliminary analytical results, sample WH-N01@5' was selected for waste characterization, and was submitted for laboratory analysis of the full Table 915-1 analytical suite. Analytical results indicated that soil impacts were present at sample location WH-N01@5', due to the polycyclic aromatic hydrocarbon (PAH), barium (Ba), and copper (Cu) concentrations above ECMC standards and site-specific background levels (x 1.25 for metals). As such, a Form 19-Initial/Supplemental Spill/Release Report (Document No. 403439853) was submitted on June 21, 2023, and the ECMC issued Spill/Release Point ID 484648. Analytical results indicated that the remaining constituent concentrations in the soil samples collected during wellhead cut and cap and flowline riser removal activities were in compliance with ECMC standards and/or within site-specific background levels. A topographic Site Location Map is provided as Figure 1. Soil sample and groundwater sample locations and field screening data are presented in Table 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):

On December 22, 2023, through April 29, 2024, excavation activities were conducted to address remaining soil impacts at the former wellhead location. Soil samples were collected from the base and sidewalls of the final wellhead excavation area, at depths ranging from approximately 5 to 10 feet below ground surface (bgs). Based on the waste characterization results for sample WH-N01@5', a waste profile was developed, and subsequent confirmation soil samples were submitted for analysis of BTEX, TPH, TMB, PAHs, and select Table 915-1 metals (As, Ba, Cd, Cu, Ni, and Se). Analytical results indicated that constituent concentrations in the soil samples collected from the final wellhead excavation extent were in compliance with ECMC Table 915-1 standards and/or within site-specific background levels (x 1.25 for metals). Soil analytical results are presented in Tables 2 through 5. The soil sample and field screening locations are illustrated on Figures 2 through 4.

Proposed Groundwater Sampling

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

Possible groundwater was encountered during wellhead over-excavation activities at approximately 6 feet bgs. On December 22, 2023, sample GW01 was collected from the wellhead 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 constituent concentrations in sample GW01 were below laboratory detection limits (ND), and therefore in compliance with ECMC Table 915-1 standards. Groundwater was not encountered during subsequent over-excavation activities at the former wellhead location to 10 feet bgs. As such, sample GW01 may have been collected from surface water/runoff pooling in the wellhead excavation area, and not groundwater. Sample location GW01 is illustrated on Figure 3, and the analytical results are presented in Table 6.

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 June 12, 2023, soil screening was conducted at 4 sidewall locations in the cut and cap excavation area, and 4 locations at the ground surface adjacent to the excavation. Based on the inspection and screening results, potential hydrocarbon-impacted soil was observed at the soil screening location WH-N01@5', and this sample was submitted for laboratory analysis in accordance with ECMC Operator Guidance. Hydrocarbon-impacted soil was not observed at the remaining soil screening locations. On June 13, 2023, a soil gas survey was conducted at 3 soil vapor points (SVP01 - SVP03) installed adjacent to the former wellhead location following cut and cap operations. GEM 5000 field readings were non-detect for methane at the all 3 SVP locations. The SVP locations are illustrated on Figure 2, and SVP screening results are summarized in Table 7. The laboratory analytical reports are provided as Attachment A. The field notes and a photographic log are provided as Attachment B.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected	10	--	Highest concentration of TPH (mg/kg)	242
Number of soil samples exceeding 915-1	2	--	Highest concentration of SAR	8.53
Was the areal and vertical extent of soil contamination delineated?	Yes	BTEX > 915-1	No	
Approximate areal extent (square feet)	360	Vertical Extent > 915-1 (in feet)	10	

NA / ND

Groundwater

Number of groundwater samples collected	1	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)	6	ND	Highest concentration of Ethylbenzene (µg/l)	_____
Number of groundwater monitoring wells installed	0	ND	Highest concentration of Xylene (µg/l)	_____
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?

Seventeen (17) background soil samples were collected from undisturbed native material adjacent to the wellhead excavation area, at comparable depths and soil composition to the confirmation soil samples. The background soil samples were submitted for laboratory analysis of Table 915-1 metals and the Soil Suitability for Reclamation Parameters, using standard ECMC-approved methods appropriate for detecting the target analytes in Table 915-1. Analytical results for the background soil samples are presented in Tables 4 and 5. The background soil sample locations are illustrated on Figures 2 and 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?

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 December 22, 2023, through April 29, 2024, approximately 80 cubic yards of impacted material were removed from the wellhead excavation area and transported to the Front Range Landfill in Erie, Colorado for disposal. The excavation area was subsequently backfilled and re-graded to match pre-existing site 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 analytical results indicate that impacted soils in the wellhead 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). Laboratory results indicate that constituent concentrations in the remaining soil samples collected during flowline riser removal activities were in compliance ECMC Table 915-1 soil standards and/or within site-specific background levels. The remaining portion of the Howard 25C-22HZX flowline was abandoned in place due to operational restrictions and safety concerns associated with additional active flowlines remaining in the same corridor. The remaining portion of flowline will be removed at a later date. Additional soil screening and sampling activities will be conducted along the remaining portion of the flowline during future removal activities, which will be conducted in conjunction with future removal of the remaining active flowline in the same corridor. Hydrocarbon-impacted soil was not observed during field inspection and soil screening activities. Laboratory analytical results indicate that constituent concentrations in sample GW01, collected from the wellhead excavation area, were below laboratory detection limits and therefore in compliance with ECMC Table 915-1 standards. Groundwater was not encountered during subsequent over-excavation activities at the former wellhead location to 10 feet bgs. As such, sample GW01 may have been collected from surface water/runoff pooling in the wellhead excavation area, and not groundwater. 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)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) 80

_____ 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.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other Final Report

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 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 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: \$ 0

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:

N/A

Volume of E&P Waste (solid) in cubic yards 80

E&P waste (solid) description Impacted soil

ECMC Disposal Facility ID #, if applicable:

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

Volume of E&P Waste (liquid) in barrels 0

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. 08/31/2024

Proposed date of completion of Reclamation. 10/31/2024

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. 06/20/2023

Actual Spill or Release date, or date of discovery. 06/20/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/12/2023

Proposed site investigation commencement. 06/12/2023

Proposed completion of site investigation. 04/29/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/22/2023

Proposed date of completion of Remediation. 04/29/2024

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 recent ECMC approval of the previous Form 27-Supplemental update for this location (Document No. 403528694), Kerr-McGee is submitting the following responses to the COAs that were issued.

COA1: Water initially found in the wellhead excavation area and flowline removal pothole FL-B02@4' was determined to not be groundwater. Please see the Proposed Groundwater Sampling section for additional details.

COA2: Operator has completed additional background soil sampling from locations sufficiently away from the impacted area to reflect conditions not impacted by oil and gas activity, and from similar depths and lithologic material for comparison to confirmation soil samples. The additional background sampling activities were included in the "ongoing excavation and site assessment activities," described in the Form 19-Initial/Supplemental Spill/Release Report (Document No. 403439853).

COA3: Operator has experienced delays in reporting and has attempted to submit quarterly Form 27-Supplemental updates. However, due to the ECMC returning multiple Form 27 submittals back to draft status, subsequent re-submittals of these forms have re-started the 90-day reporting clock.

COA4: All proposed work and assessment activities to address remaining historical soil impacts have been completed at this time, as described herein.

Laboratory results indicate that impacted soils in the wellhead 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). Laboratory results indicate that constituent concentrations in the remaining soil samples collected during flowline riser removal activities were in compliance ECMC Table 915-1 soil standards and/or within site-specific background levels. The remaining flowline was abandoned in place due to operational restrictions and safety concerns associated with additional active flowlines remaining in the same corridor. The remaining portion of the Howard 25C-22HZX flowline will be removed at a later date. Additional soil screening and sampling activities will be conducted along the remaining portion of the flowline during future removal activities, which will be conducted in conjunction with future removal of the remaining active flowline in the same corridor. As such, assessment is complete and Kerr-McGee is requesting an NFA determination for this location, based on the analytical and soil screening data provided herein.

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

Signed: Ariana Ochoa

Title: Sr. HSE Advisor

Submit Date: 05/24/2024

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: Candice (Nikki) Graber

Date: 09/17/2024

Remediation Project Number: 28992

COA Type

Description

COA Type	Description
1 COA	<p>Based on the information presented, it appears that no further remedial action is necessary at this time and the ECMC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding ECMC standards or if groundwater is found to be impacted, then further investigation and/or remediation activities may be required.</p> <p>This no further action determination is limited to environmental remediation. Operator is required to comply with ECMC 1100 Series Rules for Flowline Regulations for all Flowline Abandonment activities and ECMC 400 Series Rules for Wellhead Plugging and Abandonment.</p> <p>The surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules. For locations with active ongoing oil and gas operations, comply with Rule 1003 interim reclamation requirements and for locations that will no longer have active oil and gas operations, comply with Rule 1004 Final Reclamation requirements.</p>

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

Att Doc Num	Name
403727383	FORM 27-SUPPLEMENTAL-SUBMITTED
403786394	OTHER

403786401	SITE MAP
403786418	OTHER
403801402	ANALYTICAL RESULTS
403801411	SOIL SAMPLE LOCATION MAP
403801413	SOIL SAMPLE LOCATION MAP
403801414	SOIL SAMPLE LOCATION MAP
403801416	ANALYTICAL RESULTS
403801420	PHOTO DOCUMENTATION

Total Attach: 10 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)