

State of Colorado Energy & Carbon Management Commission

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Document Number:

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Receive Date:

Report taken by:

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 COGCC 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: (970) 336-3500 Mobile: (970) 515-1698
Address: P O BOX 173779		
City: DENVER	State: CO Zip: 80217-3779	
Contact Person: Gregory Hamilton	Email: Gregory_Hamilton@oxy.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 25182 Initial Form 27 Document #: 403170022

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 #: 123-21632	County Name: WELD
Facility Name: PSC 15-11	Latitude: 40.233850	Longitude: -104.856676	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWSE	Sec: 11	Twp: 3N	Range: 67W Meridian: 6 Sensitive Area? Yes
Facility Type: WELL	Facility ID: _____	API #: 123-24048	County Name: WELD
Facility Name: PSC 37-11	Latitude: 40.233751	Longitude: -104.856527	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWSE	Sec: 11	Twp: 3N	Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: <u>SPILL OR RELEASE</u>		Facility ID: <u>483687</u>	API #: _____	County Name: <u>WELD</u>	
Facility Name: <u>PSC 15-11 Flowline Historical Rel.</u>		Latitude: <u>40.234207</u>		Longitude: <u>-104.855326</u>	
** correct Lat/Long if needed: Latitude: _____ Longitude: _____					
QtrQtr: <u>SWSE</u>	Sec: <u>11</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? Yes

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 300 feet northeast of the wellheads.
 Surface water is located approximately 375 feet south of the wellheads.
 A wetland is located approximately 280 feet northeast of the wellheads.
 The wellheads are located within a designated high-priority habitat.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | _____ |
| <input checked="" type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input checked="" type="checkbox"/> Condensate | <input type="checkbox"/> Pigging Waste | |
| <input type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash | |
| <input type="checkbox"/> Drill Cuttings | <input type="checkbox"/> Spent Filters | |
| | <input type="checkbox"/> Pit Bottoms | |
| | <input type="checkbox"/> 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' (E-W) x 18' (N-S) x 6' 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 PSC 15-11 and PSC 37-11 wellheads on December 2 and 21, 2022, respectively. Groundwater was encountered in the wellhead excavation areas at approximately 3 to 6 feet below ground surface (bgs). Visual inspection and field screening of soils around the wells and associated pumping equipment was conducted following cut and cap operations, and soil samples (WH-B01 @ 6' and 15-11-WH-B01 @ 4') were submitted for laboratory analysis to determine if a release occurred. The flowlines associated with these wellheads were removed on December 2, 2022 through January 6, 2023, as described in a previous Form 27-Supplemental update (Document No. 403413657). Laboratory analytical results indicated that historically impacted soils were present at sample locations 15-11-FL-B07 @ 4' and 15-11-FL-B09 @ 4' due to the naphthalene, TMB, and/or barium (Ba) concentrations above ECMC standards and site-specific background levels. As such, a Form 19-Initial/Supplemental Spill/Release Report (Document No. 403282235) was submitted on January 6, 2023, and the ECMC issued Spill/Release Point ID 483687. The remaining analytical results for the soil samples collected during wellhead cut and cap and flowline removal operations were in compliance with ECMC standards and/or within the range of site-specific background levels or acceptable soil variability for pH. Soil sample location and field screening data are presented in Table 1. Soil analytical results are summarized in Tables 2 through 5. Groundwater analytical results are summarized in Table 6. The soil and groundwater sample and field screening locations are illustrated on Figures 1 through 5.

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 July 19 through 26, 2023, excavation activities were conducted to address remaining soil impacts at flowline sample locations 15-11-FL-B07@4' and 15-11-FL-B09@4'. Soil samples were collected from the base and sidewalls of the final flowline excavation extents, at depths of approximately 6 and 5 feet bgs, respectively. Based on the waste characterization results for samples 15-11-FL-B07@4' and 15-11-FL-B09@4', and the ECMC-approved reduced analyte list (Document No. 403331515), the soil samples were submitted for laboratory analysis of BTEX, TMB, naphthalene, TPH-GRO (C6-C10), DRO (C10-C28), and ORO (C28-C40), PAHs, and select Table 915-1 metals (As, Ba, Cd, Cu, Pb, Ni, Se and Ag). Analytical results indicate that constituent concentrations in the soil samples collected from the final flowline excavation extents were in compliance with the applicable ECMC Table 915-1 standards and/or within the range of 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 December 2 through July 19, 2023, seven groundwater samples were collected from the wellhead cut and cap excavation areas (GW01, 15-11-GW01), flowline removal potholes (FL-GW02, 15-11-FL-GW02, 15-11-GW03), and flowline excavation areas (15-11-FL-GW04, 15-11-FL-GW05), 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 all 7 groundwater samples were in compliance with Table 915-1 standards. The groundwater sample locations are illustrated on Figures 2 through 5. The groundwater analytical results are summarized in Table 6. Groundwater was encountered in the flowline excavation areas at approximately 6 feet bgs. The soil samples collected from the bases of these excavation areas, at the same depth at which groundwater was encountered, were in compliance with Table 915-1 soil standards. Therefore, groundwater in the flowline excavation areas was not in contact with impacted soils.

Proposed Surface Water Sampling

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

Groundwater was encountered in the flowline excavation areas at approximately 6 feet bgs. The soil samples collected from the bases of these excavation areas, at the same depth at which groundwater was encountered, were in compliance with Table 915-1 soil standards. Therefore, groundwater in the flowline excavation areas was not in contact with impacted soils.

Additional Investigative Actions

☐ Additional alternative investigative actions described in attached Site Investigation Plan (summary):

On December 2, 2022 through January 6, 2023, soil screening was conducted at 8 sidewall locations in the cut and cap excavation areas, 8 locations at the ground surface adjacent to the cut and cap excavations, and 16 pothole locations during flowline removal activities. Based on the inspection and screening results, hydrocarbon-impacted soil was not observed at the soil screening locations, and no soil samples were submitted for laboratory analysis in accordance with ECMC Operator Guidance. On December 8 and 27, 2023, soil gas surveys were conducted at 6 soil vapor points (SVP) installed adjacent to the former wellheads, as described in a previous Form 27-Supplemental update (Document No. 403331515). The SVP locations are illustrated on Figures 2 and 3; SVP screening results are summarized in Tables 7 and 8. 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 27

Number of soil samples exceeding 915-1 7

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

Approximate areal extent (square feet) 260

NA / ND

-- Highest concentration of TPH (mg/kg) 0.991

-- Highest concentration of SAR 7.16

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 6

Groundwater

Number of groundwater samples collected 7

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 6

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 0

ND Highest concentration of Benzene (µg/l)

ND Highest concentration of Toluene (µg/l)

ND Highest concentration of Ethylbenzene (µg/l)

-- Highest concentration of Xylene (µg/l) 2.87

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?

Twelve (12) background soil samples were collected from native material adjacent to wellhead cut and cap and flowline excavation areas, at comparable depths and soil composition as the confirmation soil samples. Additionally, nine (9) background soil samples were collected from native material adjacent to the associated PSC 15-11 tank battery location, at comparable depths and soil composition as the confirmation soil samples. The background soil samples were submitted for laboratory analysis of select the Soil Suitability for Reclamation Parameters and/or Table 915-1 metals, 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.

☐ 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 July 19 through 26, 2023, approximately 120 cubic yards of impacted material were excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal; approximately 81 barrels of non-impacted groundwater were removed from the wellhead cut and cap and flowline excavation areas for sidewall stability and backfill management purposes, and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling. The excavation areas were 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 data indicate that impacted soils in the flowline excavation areas have been remediated to be in compliance with the applicable ECMC Table 915-1 standards and/or within the range of site-specific background levels (x 1.25 for metals). Laboratory analytical results indicate that constituent concentrations in the confirmation soil samples collected during wellhead cut and cap operations were in compliance with Table 915-1 standards and/or within the range of site-specific background levels, with exception to the pH value in sample WH-B01@6'. However, the pH result was within the acceptable range of analytical variability when compared to background levels, and the pH exceedance alone is not indicative of an E&P release at the former PSC 37-11 wellhead location. As such, this material was determined to be acceptable to leave in place, as approved by the ECMC in a previous Form 27-Supplemental update (Document No. 403331515). Impacted soils encountered at sample locations 15-11-FL-B07@4' and 15-11-FL-B09@4' were not in contact with groundwater, as shown in the attached photo documentation. Groundwater was encountered in the two flowline excavation areas at approximately 6 feet bgs, and the soil samples collected from the bases of these excavation areas (15-11-FL-B15@6' and 15-11-FL-B16@6'), at the same depth at which groundwater was encountered, were in compliance with ECMC Table 915-1 soil standards. Therefore, groundwater encountered in the flowline excavation areas was not in contact with impacted soils in these locations. 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

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☒ Ex Situ

Yes _____ Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) _____ 120

Name of Licensed Disposal Facility or COGCC Facility ID # _____

No _____ 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

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 was encountered in the two flowline excavation areas at approximately 6 feet bgs, and the soil samples collected from the bases of these excavation areas (15-11-FL-B15@6' and 15-11-FL-B16@6'), at the same depth at which groundwater was encountered, were in compliance with ECMC Table 915-1 soil standards. Therefore, groundwater encountered in the flowline excavation areas was not in contact with impacted soils in these locations.

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:

Approximately 81 barrels of non-impacted groundwater were removed from the wellhead cut and cap and flowline excavation areas and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling

Volume of E&P Waste (solid) in cubic yards 120

E&P waste (solid) description Impacted Soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Buffalo Ridge Landfill - Keenesburg, Colorado

Volume of E&P Waste (liquid) in barrels 81

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

COGCC Disposal Facility ID #, if applicable: 434766

Non-COGCC 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? 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 COGCC 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 ECOM 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. 10/31/2023

Proposed date of completion of Reclamation. 11/30/2023

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. 01/06/2023

Actual Spill or Release date, or date of discovery. 01/06/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/02/2022

Proposed site investigation commencement. 12/02/2022

Proposed completion of site investigation. 07/26/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/02/2022

Proposed date of completion of Remediation. 07/26/2023

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

Laboratory data indicate that impacted soils in the flowline excavation areas have been remediated to be in compliance with the applicable ECMC Table 915-1 standards and/or within the range of site-specific background levels (x 1.25 for metals). Laboratory analytical results indicate that constituent concentrations in the confirmation soil samples collected during wellhead cut and cap operations were in compliance with Table 915-1 standards and/or within the range of site-specific background levels, with exception to the pH value in sample WH-B01@6'. However, the pH result was within the acceptable range of analytical variability when compared to background levels, and the pH exceedance alone is not indicative of an E&P release at the former PSC 37-11 wellhead location. As such, this material was determined to be acceptable to leave in place, as approved by the ECMC in a previous Form 27-Supplemental update (Document No. 403331515). Groundwater was encountered in the two flowline excavation areas at approximately 6 feet bgs, and the soil samples collected from the bases of these excavation areas (15-11-FL-B15@6' and 15-11-FL-B16@6'), at the same depth at which groundwater was encountered, were in compliance with ECMC Table 915-1 soil standards. Therefore, groundwater encountered in the flowline excavation areas was not in contact with impacted soils in these locations. Based on the analytical and soil screening data provided herein, assessment is complete at this location, 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: Gregory Hamilton

Title: Environmental Lead

Submit Date:

Email: Gregory_Hamilton@oxy.com

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

COGCC Approved:

Date:

Remediation Project Number: 25182

COA Type

Description

0 COA	

Attachment Check 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

403514904	OTHER
403514911	OTHER
403514950	SITE MAP
403514951	ANALYTICAL RESULTS
403514952	PHOTO DOCUMENTATION
403514953	ANALYTICAL RESULTS
403514954	SOIL SAMPLE LOCATION MAP
403514955	SOIL SAMPLE LOCATION MAP
403514956	SOIL SAMPLE LOCATION MAP
403514957	SOIL SAMPLE LOCATION MAP
403514958	ANALYTICAL RESULTS

Total Attach: 11 Files

General Comments

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

Total: 0 comment(s)