

State of Colorado
Energy & Carbon Management Commission

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403662697
Receive Date:
01/23/2024
Report taken by:
Kari Brown

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: <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) 336-3500</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80217-3779</u>		Mobile: <u>(970) 515-1698</u>
Contact Person: <u>Gregory Hamilton</u>	Email: <u>Gregory_Hamilton@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 31102 Initial Form 27 Document #: 403491458

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>123-39435</u>	County Name: <u>WELD</u>
Facility Name: <u>FRONT RANGE FARMS 16N-14HZ</u>	Latitude: <u>40.065219</u>	Longitude: <u>-104.963698</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESE</u>	Sec: <u>11</u>	Twp: <u>1N</u>	Range: <u>68W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>WELL</u>	Facility ID: _____	API #: <u>123-39439</u>	County Name: <u>WELD</u>
Facility Name: <u>FRONT RANGE FARMS 37C-14HZ</u>	Latitude: <u>40.065220</u>	Longitude: <u>-104.963805</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESE</u>	Sec: <u>11</u>	Twp: <u>1N</u>	Range: <u>68W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: SPILL OR RELEASE Facility ID: 485390 API #: _____ County Name: WELD

Facility Name: Front Range Farms 16N-14HZ Hist. Latitude: 40.065218 Longitude: -104.963686

** correct Lat/Long if needed: Latitude: _____ Longitude: _____

QtrQtr: NESE Sec: 11 Twp: 1N Range: 68W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Crop Land

Is domestic water well within 1/4 mile? Yes Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

Multiple buildings and livestock holding pens are located within ¼ mile of the wellhead.
 The nearest building is located approximately 650 feet northeast of the wellhead.
 The nearest domestic water well is located approximately 750 feet northeast of the wellhead.
 A wetland is located approximately 1,100 feet southeast 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
Yes	SOILS	15' (E-W) x 15' (N-S) x 8' 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 Front Range Farms 16N-14HZ wellhead on October 3, 2023. Groundwater was not encountered in the wellhead cut and cap excavation area. Soil screening around the well and associated pumping equipment was conducted following cut and cap operations, and a soil sample (WH-B01@6') was submitted for laboratory analysis. The flowline associated with this wellhead and with the previously-abandoned Front Range Farms 37C-14HZ wellhead were removed on October 3 and 4, 2023. The Front Range Farms 37C-14HZ wellhead was plugged and abandoned on February 4, 2022, as described in Form 27 Document No. 403098262. Soil samples were collected from the locations where the flowline risers were disconnected at the wellhead (16N-FL-B01@4') and separators (16N-FL-B02@4' and 37C-FL-B01@4'), and where the flowlines changed direction (16N-FL-B03@4', 16N-37C-FL-B04@4', 16N-37C-FL-B05@4', and 16N-37C-FL-B13@4'), and submitted for laboratory analysis. Analytical results indicated that soil impacts were present at sample location WH-B01@6' due to the pH, and electrical conductivity (EC) results above ECMC Table 915-1 standards and site-specific background levels. As such, a Form 19-Initial/Supplemental Spill/Release Report (Document No. 403571826) was submitted and the ECMC issued Spill/Release Point ID 485390. The remaining analytical results for the soil samples collected during wellhead cut and cap and flowline removal activities were in compliance with ECMC Table 915-1 standards and/or within the range of site-specific background levels (x 1.25 for metals). Based on the elevated pH and EC results for sample WH-B01@6', a verification soil sample (WH-B02@6') was collected on December 28, 2023, to confirm these exceedances. Analytical results for sample WH-B02@6' indicated that the EC result remained above the Table 915-1 standard as well as the range of background results. Soil sample location 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 January 10, 2024, excavation activities were initiated to address remaining soil impacts at the former wellhead location. Soil samples have been collected from the base and sidewalls of the excavation area, at depths of approximately 7 and 8 feet below ground surface (bgs), respectively. Based on analytical results for waste characterization sample WH-B01@6', the confirmation soil samples have been submitted for laboratory analysis of BTEX, TPH, TMB, PAHs, pH, EC, and select Table 915-1 metals (As, Ba, Cu, Pb, Ni, Se, and Zn). Analytical results indicate that impacted soil remains in the wellhead excavation area due to pH, Pb, and Ni results above Table 915-1 standards and site-specific background levels. Future confirmation soil samples will continue to be submitted for analysis of the reduced analytical suite described herein. Excavation and assessment activities to address remaining soil impacts are currently ongoing, and will be summarized in a Form-27 Supplemental update.

Proposed Groundwater Sampling

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

Groundwater has not been encountered during wellhead cut and cap, flowline removal, or subsequent over-excavation activities completed to-date. If groundwater is encountered during ongoing excavation activities at the former wellhead/flowline riser or FL-B07 flowline excavation locations, a minimum of one grab sample will be collected as soon as practical. Groundwater samples will be submitted to an accredited laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4- and 1,3,5-trimethylbenzene (TMB), using standard methods appropriate for detecting the target analytes in Table 915-1.

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):

October 3 and 4, 2023, soil screening was conducted at 4 sidewall locations within the cut and cap excavation area, 4 locations at the ground surface adjacent to the excavation, and 7 flowline removal potholes. Based on the screening results, hydrocarbon-impacted soil was not observed at the soil screening locations. On October 26, 2023, a soil gas survey was conducted at 4 soil vapor points (SVP01, SVP02, SVP04, SVP05) installed adjacent to the former wellhead following cut and cap operations. GEM 5000 field readings were non-detect for methane at all 4 soil vapor points. Soil analytical results are summarized in Tables 2 through 5. The SVP screening results are summarized in Table 6. The wellhead soil sample and field screening locations are illustrated on Figure 1. The flowline soil sample and field screening locations are illustrated on Figure 2. 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 14

Number of soil samples exceeding 915-1 4

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 225

NA / ND

ND Highest concentration of TPH (mg/kg) _____

-- Highest concentration of SAR 19

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 8

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

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?

Ten (10) background soil samples were collected from undisturbed native material adjacent to the wellhead cut and cap excavation area, at comparable depths and soil composition to the confirmation soil samples. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and Table 915-1 metals using standard ECOMC-approved methods appropriate for detecting the target analytes in Table 915-1. Analytical results for the background soil samples are presented in Table 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?

Impacted soil remains in the wellhead excavation area, due to elevated pH, Pb, and Ni results above ECMC Table 915-1 standards and site-specific background levels (x 1.25 for metals). Excavation and site assessment activities to address remaining soil impacts are currently ongoing, and will be summarized in a forthcoming Form 27-Supplemental update.

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 January 10, 2024, approximately 100 cubic yards of impacted material were removed from the wellhead excavation area and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Excavation and assessment activities to address remaining pH and metals (Pb, Ni) impacts in the wellhead excavation area are currently ongoing, and will be summarized in a forthcoming Form 27-Supplemental update. Impacted material will continue to be removed and transported off-site for disposal at a licensed disposal facility.

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 soil impacts remain in the wellhead excavation area, due to elevated pH, Pb, and Ni results above ECMC Table 915-1 standards and site-specific background levels (x 1.25 for metals). Excavation and assessment activities to address remaining soil impacts in the wellhead excavation area are currently ongoing, and will be summarized in a forthcoming Form 27-Supplemental update. Based on analytical results presented herein, future confirmation soil samples from the wellhead excavation area will be submitted for laboratory analysis of BTEX, TPH, TMB, PAHs, pH, EC, and select Table 915-1 metals (As, Ba, Cu, Pb, Ni, Se, and Zn). Laboratory analytical results indicate that constituent concentrations in the remaining soil samples collected during flowline removal activities were in compliance with ECMC Table 915-1 standards. As such, no further assessment is required on the Front Range Farms 16N-14HZ and 37C-14HZ flowline locations. Estimated time to attain NFA is TBD based on the extent of impacted soil remaining in the wellhead excavation area.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 100

_____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____

_____ Natural Attenuation

_____ 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

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 Remediation Progress Update

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: \$ 12500

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:

NA

Volume of E&P Waste (solid) in cubic yards 100

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 0

E&P waste (liquid) description _____

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC 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 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 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. 06/30/2024

Proposed date of completion of Reclamation. 07/31/2024

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. 10/25/2023

Actual Spill or Release date, or date of discovery. 10/24/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/03/2023

Proposed site investigation commencement. 10/03/2023

Proposed completion of site investigation. 03/31/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 01/10/2024

Proposed date of completion of Remediation. 03/31/2024

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

Excavation and assessment activities to address remaining soil impacts in the wellhead excavation area are currently ongoing, and will be summarized in a forthcoming Form 27 Supplemental update. Based on soil analytical results presented herein, future confirmation soil samples will be submitted for laboratory analysis of BTEX, TPH, TMB, PAHs, pH, EC, and select Table 915-1 metals (As, Ba, Cu, Pb, Ni, Se, and Zn).

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: 01/23/2024

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: Kari Brown

Date: 02/21/2024

Remediation Project Number: 31102

COA Type**Description**

<u>COA Type</u>	<u>Description</u>
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**

403662697	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403662741	ANALYTICAL RESULTS
403662743	OTHER
403662744	SOIL SAMPLE LOCATION MAP
403662745	SOIL SAMPLE LOCATION MAP
403662746	PHOTO DOCUMENTATION
403662747	OTHER
403662748	ANALYTICAL RESULTS
403693471	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 9 Files

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

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

Total: 0 comment(s)