

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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01/19/2024

Report taken by:

Taylor Robinson

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 22034 Initial Form 27 Document #: 402951936

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: LOCATION	Facility ID: 446070	API #: _____	County Name: WELD
Facility Name: HUNTER/HUNTER 9&16-32 O SA 34003467	Latitude: 40.355730	Longitude: -104.910164	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NESE	Sec: 32	Twp: 5N	Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE	Facility ID: 481981	API #: _____	County Name: WELD
Facility Name: Hunter, Hunter 9&16-32 O SA	Latitude: 40.355730	Longitude: -104.910164	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENE	Sec: 32	Twp: 5N	Range: 67W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Agriculture

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

Agriculture to the southwest; Groundwater at approximately 5.5 feet below ground surface (ft bgs).

SITE INVESTIGATION PLAN

TYPE OF WASTE:

☒ E&P Waste ☐ Other E&P Waste ☐ Non-E&P Waste

☒ Produced Water ☐ Workover Fluids

☒ Oil ☐ Tank Bottoms

☒ Condensate ☐ Pigging Waste

☐ Drilling Fluids ☐ Rig Wash

☐ Drill Cuttings ☐ Spent Filters

☐ Pit Bottoms

☐ Other (as described by EPA) _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	See attached data.	Groundwater Samples/Laboratory Analytical Results
Yes	SOILS	See attached data.	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.

Decommissioning activities at the Hunter/Hunter 9&16-32 O SA Facility were completed on April 11, 2022. Groundwater was encountered during excavation activities at approximately 5.5 ft bgs. Visual inspection and field screening of soils at one aboveground storage tank (AST), one produced water vessel (PWV), one pothole, one meter house, and one separator were conducted following removal activities and soil samples AST01@6"-WP, PWV-B01@4', PWV-N01@2'-WP, SEP01-Inlet@5'-WP, SEP01-Outlet@4'-WP, and PH01@5'-WP were submitted for laboratory analysis of full list Table 915-1 constituents including benzene, toluene, ethylbenzene, xylenes (BTEX), 1,2,4- and 1,3,5-trimethylbenzenes (TMBs), naphthalene, total petroleum hydrocarbons (TPH)-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO), Table 915-1 polycyclic aromatic hydrocarbons (PAHs), pH, electrical conductivity (EC), sodium adsorption ratio (SAR), boron, and Table 915-1 metals due to field indication of impact. Laboratory analytical results indicated the AST soil sample AST01@6"-WP, the flowline pothole sample PH01@5'-WP, and the separator soil sample SEP01-Outlet@4'-WP exceeded the ECMC Table 915-1 allowable levels for benzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, barium, and/or selenium. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403012433) was submitted on April 14, 2022 and the ECMC issued Spill/Release Point ID 481981. The analytical results for the remaining soil samples were within compliance of the ECMC Table 915-1 standards or below the analytical variability of background levels. The soil sample locations are depicted on Figure 1. The PID readings and soil sample results are summarized in Table 1 and Table 2, respectively.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

☒ Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

Between April 11 and September 6, 2022, excavation activities were conducted to address remaining soil impacts at the former facility location and confirmation soil samples were collected from the base and sidewalls of the final extents of the excavations at depths ranging from 5 ft bgs to 11.5 ft bgs. The confirmation soil samples were submitted for laboratory analysis of the excavation-specific waste profile developed at the time of sampling including benzene, TMBs, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, barium, and/or selenium using ECMC-approved methods. Analytical results indicated that constituent concentrations in the soil samples collected from the final excavation extent were in compliance with the ECMC Table 915-1 standards and/or below the analytical variability of background levels. Therefore, further excavation was not warranted, as approved in the Form 27 Supplemental dated December 28, 2022 (Document No. 403244257). The laboratory reports are attached

Proposed Groundwater Sampling

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

On June 6 and June 15, 2022, two groundwater samples (GW01 and GW02) were collected from the facility excavations and were submitted for Table 915-1 analyses. Two background groundwater samples were also collected and submitted for Table 915-1 inorganic parameters. Based on the laboratory analytical results, both samples exceeded the ECOM Table 915-1 allowable levels for benzene, total xylenes, 1,2,4-trimethylbenzene, and/or 1,3,5-trimethylbenzene. The excavation groundwater sample and background sample locations are depicted on Figure 1. The groundwater sample analytical results are summarized in Table 3.

Proposed Surface Water Sampling

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

Additional Investigative Actions

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

On April 11, 2022, visual inspections and field screening of soils were conducted at the base, hatch, and drainline of the AST, three sidewalls of the PWV excavation, the PWV dumphines, the separator footprint, and the meter house. Based on the inspection and screening results, hydrocarbon-impacted soils were not observed at the soil screening locations. As a result, no soil samples were submitted for laboratory analysis from these areas in accordance with the ECOM Operator Guidance. Soil screening locations are depicted on Figure 1. The PID readings and soil sample results are summarized in Table 1 and Table 2, respectively, and the laboratory reports are attached. A photographic log is attached.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 82

Number of soil samples exceeding 915-1 39

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

Approximate areal extent (square feet) 2309

NA / ND

-- Highest concentration of TPH (mg/kg) 356.1

-- Highest concentration of SAR 1.71

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 12

Groundwater

Number of groundwater samples collected 2

Was extent of groundwater contaminated delineated? No

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

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 2

-- Highest concentration of Benzene (µg/l) 770

ND Highest concentration of Toluene (µg/l)

-- Highest concentration of Ethylbenzene (µg/l) 210

-- Highest concentration of Xylene (µg/l) 1470

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?

One tank battery background soil sample was collected from the soil used to construct the tank battery for comparison to shallow samples collected within the fill material. Four native background soil samples were collected from the native material outside of the excavations. The background soil samples were submitted for analysis of pH, EC, SAR, boron, and Table 915-1 metals using ECOM-approved methods. Analytical results indicate that pH, arsenic, and selenium are naturally high in the soil used to construct the tank battery and arsenic, barium, and selenium are naturally high in the native soil. Background soil analytical results are summarized in Table 2.

Two background groundwater samples were collected from outside of the facility excavations and were submitted for analysis of Table 915-1 inorganic parameters. Laboratory analytical results indicate that levels of sulfate ion are naturally high in groundwater. Background groundwater analytical results are summarized in Table 3.

☐ Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards)

Volume of liquid waste (barrels)

☒ Is further site investigation required?

Monitoring wells will be installed to delineate the dissolved-phase plume. The monitoring well installation scope of work will be provided in a subsequent Form 27 supplemental report.

REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? No

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Approximately 3,500 cubic yards of impacted soil were removed from the site and transported to Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 760 cubic yards of impacted soil were removed from the site and transported to the Front Range Landfill in Erie, Colorado for disposal. Approximately 7,441 bbls of impacted water were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Disposal records are kept on file and available upon request.

REMEDIATION SUMMARY

Describe how remediation of existing impacts to soil and groundwater is to be accomplished (i.e. summarize remedial action plan). Provide a brief narrative description including: technical justification, schedule for implementation, estimated time to attain NFA status, plus plans and specifications for the selected remedial action technology.

Laboratory data indicate that impacted soil in the excavation areas has been removed and all remaining soil at the extent of the excavations is in compliance with the ECMC Table 915-1 standards and/or below the analytical variability of background levels. Therefore, further excavation was not warranted, as approved in the Form 27 Supplemental dated December 28, 2022 (Document No. 403244257). Groundwater was encountered in the facility excavations at approximately 5.5 ft bgs.

Monitoring wells will be installed to delineate the dissolved-phase plume. The monitoring well installation scope of work will be provided in a subsequent Form 27 supplemental report.

Soil Remediation Summary

☐ In Situ

☒ Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) _____ 7260

_____ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or COGCC Facility ID # _____ 149007

_____ Natural Attenuation

No _____ Excavate and onsite remediation

_____ Other _____

_____ Land Treatment

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Other _____

Groundwater Remediation Summary

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

GROUNDWATER MONITORING

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

Monitoring wells will be installed to delineate the dissolved-phase plume. The monitoring well installation scope of work will be provided in a subsequent Form 27 supplemental report.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

☒ Quarterly☐ Semi-Annually☐ Annually☐ Other

☐ Request Alternative Reporting Schedule:

☐ Semi-Annually☐ Annually☐ Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

Report Type:

☐ Groundwater Monitoring☐ Land Treatment Progress Report☐ O&M Report☐ Other

Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

KMOG has sufficient insurance and bonding to fully address the anticipated costs of Remediation, including the remaining estimated costs for this project. KMOG currently has over 40 million in bonds with the Energy and Carbon Management Commission. The cost for remediation is a preliminary estimate only, costs may change upwards or downward based on site-specific information. KMOG makes no representation or guarantees as to the accuracy of the preliminary estimate.

Operator anticipates the remaining cost for this project to be: \$ 30000

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 3,500 cubic yards of impacted soil were removed from the site and transported to Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 7,441 bbls of impacted water were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 4260

E&P waste (solid) description Impacted Soil

COGCC Disposal Facility ID #, if applicable: 149007

Non-COGCC Disposal Facility: Front Range Landfill in Erie, CO (760 CY)

Volume of E&P Waste (liquid) in barrels 7441

E&P waste (liquid) description Impacted water

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? 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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

Does Groundwater meet Table 915-1 standards? No

Is additional groundwater monitoring to be conducted? Yes

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 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. 12/18/2024

Proposed date of completion of Reclamation. 01/18/2025

IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

PRIOR DATES

Date of Surface Owner notification/consultation, if required. 04/12/2022

Actual Spill or Release date, or date of discovery. 04/12/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/11/2022

Proposed site investigation commencement. 04/11/2022

Proposed completion of site investigation. 12/31/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/11/2022

Proposed date of completion of Remediation. 12/31/2026

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

☐ Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

OPERATOR COMMENT

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

Signed: Gregory Hamilton

Title: Environmental Lead

Submit Date: 01/19/2024

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: Taylor Robinson

Date: 01/30/2024

Remediation Project Number: 22034

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**

403659187	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403659207	ANALYTICAL RESULTS
403659210	PHOTO DOCUMENTATION
403659212	SOIL SAMPLE LOCATION MAP
403671615	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 5 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)