

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
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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 ECMC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27. This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 27339 Initial Form 27 Document #: 403295700

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: 336314	API #: _____	County Name: WELD
Facility Name: JUNCTION-62N68W 2NWSW		Latitude: 40.167070	Longitude: -104.975990
		** correct Lat/Long if needed: Latitude: 40.167089	Longitude: -104.975423
QtrQtr: NWSW	Sec: 2	Twp: 2N	Range: 68W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE	Facility ID: 484183	API #: _____	County Name: WELD
Facility Name: Junction 11, 12, 22-2 O SA Facility		Latitude: 40.167089	Longitude: -104.975423
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: NWSW	Sec: 2	Twp: 2N	Range: 68W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASEFacility ID: 485125API #:County Name: WELD

Facility Name: Junction 11, 12, 22-2 O SA FacilityLatitude: 40.167271Longitude: -104.975483

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

QtrQtr: NWSWSec: 2Twp: 2NRange: 68WMeridian: 6Sensitive Area? Yes

Facility Type: SPILL OR RELEASEFacility ID: 485236API #:County Name: WELD

Facility Name: Junction 11, 12, 22-2 O SA FacilityLatitude: 40.167282Longitude: -104.975938

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

QtrQtr: NWSWSec: 2Twp: 2NRange: 68WMeridian: 6Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Surface Water

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

Surface water 550 feet (ft) north. Water well 680 ft southwest. Residential Buildings 300 ft southeast, 490 ft east. Commercial buildings 170 ft south. County roads 290 ft north, 940 ft east, and 1,000 ft west. Interstate highway 1,100 ft west. Groundwater was encountered at approximately 2 ft below ground surface (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
UNDETERMINED	GROUNDWATER	TBD	Groundwater Samples/Laboratory Analytical Results
Yes	SOILS	TBD	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 were completed at the Junction 11, 12, 22-2 O SA Facility on March 30 and June 29, 2023. Visual inspection and field screening of soil at three aboveground storage tanks (ASTs), one produced water vessel (PWV), two separators, one emission control device (ECD), three potholes, and one meter house location were conducted following removal activities. Soil samples (AST01@0.5', AST02@0.5', AST03@2', PWV-B01@6', PWV-N01@3', Sep01-Inlet@4', Sep02-Inlet@4', Sep02-Outlet@3.5', & FL01@4') were submitted for analysis of full list Table 915-1 constituents, due to the presence of impacts. Laboratory analytical results indicated that total petroleum hydrocarbons (TPH), benzene, xylenes, 1,2,4- and 1,3,5-trimethylbenzenes (TMBs), naphthalene, benzo(a) anthracene, 1-methylnaphthalene, 2-methylnaphthalene, sodium adsorption ratio (SAR), boron, arsenic, barium, and/or selenium impacts exceeding the ECMC Table 915-1 allowable levels were present at the ASTs, PWV, Sep02, and FL01 locations. As such, Form 19 Initial/Supplemental Spill/Release Reports (Document #s 403363351, 403532071, & 403532194) were submitted on April 6, 2023, September 19, 2023, and October 3, 2023, and the ECMC issued Spill/Release Point IDs 484183, 485125, and 485236. On December 13 and December 14, 2023, seven test pit samples (TP01@2', TP02@2', TP03@2', TP04@4', TP05@3', TP06@3', & TP07@3') were collected outside the facility and were submitted for analysis of site-specific waste profile Table 915-1 constituents. Laboratory analytical results indicated that SAR, arsenic, barium, lead, and/or selenium impacts exceeding the ECMC Table 915-1 allowable levels and/or below site-specific background levels were present at the test pit locations. The facility soil sample locations are depicted on Figures 1A and 1B. The PID readings and soil sample results are summarized in Tables 1 and 2.

Assessment activities are ongoing and will be summarized in a subsequent Form 27 Supplemental report.

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 March 3 and December 15, 2023, excavation activities were conducted to address remaining soil impacts at the former tank battery, separator, and flowline excavation. Confirmation soil samples were collected from the base and sidewalls of the excavations at depths ranging from 2 to 10 ft bgs. Seven test pits were also advanced to delineate soil impacts. The confirmation soil samples were submitted for laboratory analysis of the site-specific waste profile including TPH, BTEX, TMBs, naphthalene, polycyclic aromatic hydrocarbons (PAHs), SAR, boron, and/or select Table 915-1 metals using ECMC-approved methods. Laboratory analytical results indicate SAR, boron, arsenic, barium, lead, and/or selenium impacts above the ECMC Table 915-1 allowable levels and/or below site-specific background levels, remain at the E05@6', SEP02, FL01, and test pit locations. Assessment activities are ongoing. The laboratory reports are attached.

Proposed Groundwater Sampling

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

Between June 29 and December 14, 2023, nine groundwater samples were collected from the AST excavation, flowline pothole excavation, and test pit locations (AST-GW01, AST03-GW01, FL01-GW01, TP01-GW01, TP03-GW01, TP04-GW01, TP05-GW01, TP06-GW01, and TP07-GW01). Samples were submitted for laboratory analysis of full list Table 915-1 constituents in groundwater. Based on the laboratory analytical results, groundwater concentrations were in full compliance with ECMC Table 915-1 allowable levels for Table 915-1 organic constituents and chloride. Background groundwater samples are needed to assess inorganic compliance of Total Dissolved Solids (TDS) and sulfate. The excavation groundwater sample locations are depicted on Figures 1A and 1B. 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 March 30 and June 29, 2023, visual inspections and field screening of soils were conducted at the base and loadout for AST01 and AST02, the hatch and loadout for AST03, three sidewalls of the PWV excavation, two pothole locations, the ECD, 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 ECMC Operator Guidance for Oil & Gas Facility Closure document. The soil sample locations are depicted on Figure 1A. A photographic log is attached.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 51

Number of soil samples exceeding 915-1 51

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

Approximate areal extent (square feet) 4431

NA / ND

-- Highest concentration of TPH (mg/kg) 10220

-- Highest concentration of SAR 19

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 10

Groundwater

Number of groundwater samples collected 9

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 2

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 9

ND Highest concentration of Benzene (µg/l)

ND Highest concentration of Toluene (µg/l)

ND Highest concentration of Ethylbenzene (µg/l)

ND Highest concentration of Xylene (µg/l)

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 (TB-BG01@0.5') was collected from the soil used to construct the tank battery for comparison to samples collected within the fill material. Three native background soil samples (NATIVE-BG04@3', NATIVE-BG05@3', and NATIVE-BG05@6') were collected from native material outside of the facility excavations. Background samples were submitted for laboratory analysis of pH, EC, SAR, boron, and/or select Table 915-1 metals. Laboratory analytical results indicate that arsenic is naturally high in the soil used to construct the tank battery, and EC, SAR, pH, arsenic, barium, lead, nickel, and selenium are naturally high in the native soil. The background soil sample laboratory analytical results are summarized in Table 2. The background soil sample locations are depicted on Figure 2.

☐ 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?

Assessment activities are ongoing and will be summarized 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.

Impacted soil from the facility excavation will be removed and transported to a licensed disposal facility. Final disposal information will be provided upon completion of excavation activities. Disposal records will be kept on file and available upon request. The excavation areas will be backfilled and contoured to match pre-existing 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 impacts exceeding the ECOM Table 915-1 allowable level and background levels for SAR, boron, arsenic, barium, lead, and selenium remain in the tank battery excavation, separator excavation, flowline excavation, and test pit locations. Assessment activities are ongoing. Groundwater was encountered in the AST excavation, flowline excavation, and test pit locations between 2 and 7 ft bgs. Groundwater analytical results indicate that Table 915-1 organic constituents and chloride ions are in compliance with ECOM standards. Background groundwater samples are needed to determine TDS and sulfate compliance. Assessment activities are ongoing and will be summarized in a subsequent Form 27 Supplemental report within 90 days following the completion of assessment activities.

Soil Remediation Summary

☐ In Situ

☐ Ex Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____

_____ 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

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: \$ 19500

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation?

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

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

E&P waste (solid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

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

Does the previous reply indicate consideration of background concentrations? _____

Does Groundwater meet Table 915-1 standards? _____

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.

Is the described reclamation complete? _____

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? _____

If YES, does the seed mix comply with local soil conservation district recommendations? _____

Did the local soil conservation district provide the seed mix? _____

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. _____

Proposed date of completion of Reclamation. _____

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. 04/03/2023

Actual Spill or Release date, or date of discovery. 04/03/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/30/2023

Proposed site investigation commencement. 03/30/2023

Proposed completion of site investigation. 03/11/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/30/2023

Proposed date of completion of Remediation. 03/11/2025

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: Ariana Ochoa

Title: Sr. HSE Advisor

Submit Date:

Email: DJRemediation_Forms@oxy.com

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

ECMC Approved:

Date:

Remediation Project Number: 27339

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.

<u>Att Doc Num</u>	<u>Name</u>
403713747	PHOTO DOCUMENTATION
403713748	ANALYTICAL RESULTS
403714752	SOIL SAMPLE LOCATION MAP
403714756	SOIL SAMPLE LOCATION MAP
403714757	SOIL SAMPLE LOCATION MAP

Total Attach: 5 Files

General Comments

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

Total: 0 comment(s)