

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Laurel Anderson

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>		
City: <u>DENVER</u>	State: <u>CO</u>	Phone: <u>(713) 350-4906</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 #: 27095 Initial Form 27 Document #: 403301119

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>PIT</u>	Facility ID: <u>118064</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>STATE 2</u>	Latitude: <u>40.221777</u>	Longitude: <u>-104.673267</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>CSW</u>	Sec: <u>16</u>	Twp: <u>3N</u>	Range: <u>65W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>LOCATION</u>	Facility ID: <u>317677</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>STATE-63N65W 16CSW</u>	Latitude: <u>40.221730</u>	Longitude: <u>-104.673030</u>	
** correct Lat/Long if needed: Latitude: <u>40.222002</u>		Longitude: <u>-104.673219</u>	
QtrQtr: <u>CSW</u>	Sec: <u>16</u>	Twp: <u>3N</u>	Range: <u>65W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: SPILL OR RELEASE Facility ID: 484421 API #: _____ County Name: WELD
 Facility Name: Megan H 16-33 O SA Tank Battery Latitude: 40.222002 Longitude: -104.673219
 ** correct Lat/Long if needed: Latitude: _____ Longitude: _____
 QtrQtr: CSW Sec: 16 Twp: 3N Range: 65W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SC Most Sensitive Adjacent Land Use livestock
 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

Domestic water well: none
 Surface water: none
 Wetlands: none
 Spring: none
 Livestock: none
 Occupied Building: none
 High Priority Habitats: none

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	180' (N-S) x 200' (E-W) x 35' 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.

Decommissioning activities were completed at the Megan H 16-33 O SA production facility on April 18-26, 2023. Groundwater was not encountered during excavation activities. Visual inspection and field screening of soils at one separator, three meter houses, one produced water vessel (PWV), one emission control device (ECD), and three aboveground storage tanks (AST) was conducted following removal activities and soil samples (SEP-B01@4', SEP-B02@4', PW-B01@5', PW-S01@2.5', PW-E01@2.5', PW-W01@2.5', PW-N01@2.5', AST-B01@3", AST-B03@3", AST-B05@3") were submitted for laboratory analysis to determine if a release occurred. Laboratory analytical results indicated that benzene, ethylbenzene, total xylenes, TPH, naph., TMBs, pH, SAR, 1 and 2 methyl naphthalene, arsenic, and barium concentrations in soil sample collected from beneath the former PWV exceeded the applicable ECOMC Table 915-1 standards. As such, a Form 19-Initial Spill/Release Report (Document No. 403385676) was submitted on April 28, 2023, and the ECOMC issued Spill/Release Point ID 484421 for this release. A topographic Site Location Map showing the geographic setting of the site location is provided as Figure 1. Soil sample location and field screening data is presented in Table 1. The facility soil sample and field screening locations are illustrated on Figures 2 and 3. The laboratory analytical report is provided as Attachment A. The field notes and photographic log are provided as Attachment B.

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):

From 4/18/23-4/4/24 soil samples were collected from the base and sidewalls of the current excavation extent ranging at depths of approximately 2.5 to 35 feet below ground surface (bgs). Based on the waste characterization results (PW-B01@5'), subsequent soil samples have been submitted for laboratory analysis of BTEX, TPH, naph., TMBs, pH, SAR, PAHs, arsenic, barium, cadmium, and selenium using ECMC-approved methods. Analytical results indicate that BEX, naph., TMBs, TPH, 1 and 2 methylnaph., pH, As, Ba, Se, Cd, Ni, and Pb impacts remain in the excavation area. Excavation and site assessment activities are currently ongoing and will be summarized in a forthcoming Form 27-Supplemental update. Confirmation soil samples will continue to be submitted for laboratory analysis of the reduced analyte list described herein, based on the waste characterization results. The current excavation extent and associated soil sample locations are illustrated on Figure 3.

Proposed Groundwater Sampling

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

On 7/16/24, soil boring (SB-01, located approximately 45' east of the excavation extent) was advanced to approximately 55' bgs to determine depth to groundwater. Depth to groundwater was observed at 41' bgs within SB-01 and groundwater sample GW-01 was collected and submitted for laboratory analysis of Table 915-1 organic compounds in groundwater. Analytical results indicated that sample GW-01 was in compliance with the applicable Table 915-1 standards. The sample location is presented in Figure 3. If groundwater is encountered during additional assessment activities, a minimum of one grab sample will be collected as soon as practical. Samples will be submitted to an accredited laboratory for all analytes listed in Table 915-1 Organic Compounds in Groundwater (BTEX, naphthalene, 1,2,4-trimethylbenzene (1,2,4-TMB), and 1,3,5-TMB and Groundwater Inorganic Parameters (TDS, chloride, and sulfate) 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):

On April 18 through 26, 2023, visual inspections and field screening of soils was conducted at the three former meter houses, three former former AST, and one former ECD. 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.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 221
 Number of soil samples exceeding 915-1 184
 Was the areal and vertical extent of soil contamination delineated? No
 Approximate areal extent (square feet) 36000

NA / ND

-- Highest concentration of TPH (mg/kg) 5623
 -- Highest concentration of SAR 23.9
 BTEX > 915-1 Yes
 Vertical Extent > 915-1 (in feet) 35

Groundwater

Number of groundwater samples collected 1
 Was extent of groundwater contaminated delineated? No
 Depth to groundwater (below ground surface, in feet) 41
 Number of groundwater monitoring wells installed 1
 Number of groundwater samples exceeding 915-1 0

-- Highest concentration of Benzene (µg/l) 1.08
 ND Highest concentration of Toluene (µg/l) _____
 ND Highest concentration of Ethylbenzene (µg/l) _____
 -- Highest concentration of Xylene (µg/l) 3.25
 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?

Background soil samples PW-BG05 - PW-BG09 were collected from native material adjacent to the former PWV excavation at depths ranging from 8-20' bgs. Background soil samples from the Megan H 16-12 JI and UPRC H17-99HZ wellheads (located within approximately 0.25 miles) collected from similar soil type, depth, and land use have been included. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and metals using standard methods appropriate for detecting target analytes in Table 915-1. Additional background soil samples may be collected following source removal activities. Analytical results for the background soil samples are presented in Tables 3-5. Background soil sample locations are illustrated in 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?

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.

Excavation and site assessment activities to address remaining soil impacts are currently ongoing and will be summarized in a forthcoming Form 27-Supplemental update.

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.

Excavation and site assessment activities to address remaining soil impacts are currently ongoing and will be summarized in a forthcoming Form 27-Supplemental update. Estimated time to attain NFA is TBD based on the extent of impacted soil remaining.

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 ECMC 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 ECMC. 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: \$ 20000 _____

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 Remediation 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. 01/03/2023

Actual Spill or Release date, or date of discovery. 04/26/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/18/2023

Proposed site investigation commencement. 04/18/2023

Proposed completion of site investigation. 12/31/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/26/2023

Proposed date of completion of Remediation. 03/31/2025

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

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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: 09/01/2024

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: Laurel Anderson

Date: 11/07/2024

Remediation Project Number: 27095

COA Type**Description**

	ECMC added Pit Facility ID 118064 to the Site Information section and selected Rule 913.c.(1): Pit or Cuttings Trench closure under the Purpose Information section of the subject Form.
	Operator did not properly characterized impacts to soil identified at the separator. Operator is required to fully define the horizontal and vertical extent of contamination over Protection of Groundwater Soil Screening Level Concentrations to soil by collecting and analyzing an appropriate number of soil samples for complete Table 915-1 Contaminants of Concern until Operator has submitted sufficient characterization data to request and receive Director Approval of reduced list of contaminants of concern.
	Operator shall provide documentation of all site investigation and remediation activities to date for this remediation project for ECMC review via Supplemental Form 27. Quarterly updates shall include: a detailed project summary and status, a current map of the subject location including current and former excavation limits, and ALL previous and proposed soil boring and sample locations, in addition to figures depicting monitoring well locations and groundwater contour maps depicting groundwater gradient and flow direction.
	On the next quarterly Form 27 Supplemental, Operator will provide revised Proposed dates of Site Investigation and Remediation Completion based on soil and groundwater analytical data obtained from ongoing site investigation.
	Laboratory analytical provided by Operator indicates hydrocarbons are present in groundwater outside the extent of the remedial excavation; therefore the pathway to groundwater is complete. In accordance with Rules 901.a and Rule 915.e.(3)B.iii Operator shall submit a Form 27 proposing monitoring wells for groundwater site characterization.
	Operator will fully define the horizontal and vertical extent of impacts through site characterization. Site characterization can be achieved through installation of soil borings, monitor wells, test pits, and excavations.. The number and location of samples collected must be appropriate to determine the horizontal and vertical extent of the impact through laboratory analytical and field screening methods. Based on the vertical extent of impacts, Operator will collect samples on a bias; from multiple depths/areas where the highest concentrations would be expected based on visible contamination, odor characteristics, field screening results, release characteristics, soil type and information from prior sampling. Operator shall analyze soil samples from the final excavation extent for complete Table 915-1.

6 COAs

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
403872384	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403872853	PHOTO DOCUMENTATION

403872854	PHOTO DOCUMENTATION
403872857	SITE MAP
403872859	SOIL SAMPLE LOCATION MAP
403872860	SOIL SAMPLE LOCATION MAP
403872861	SOIL SAMPLE LOCATION MAP
403872883	ANALYTICAL RESULTS
403872885	ANALYTICAL RESULTS
403987219	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 10 Files

General Comments

User Group	Comment	Comment Date
Environmental	The horizontal and vertical extent of impacts to soil have not been delineated to date. Background samples cannot be approved until impacts are fully delineated.	11/07/2024

Total: 1 comment(s)