

State of Colorado
Energy & Carbon Management Commission

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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 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: (720) 929-4306
City: DENVER	State: CO	Zip: 80217-3779
Contact Person: Erik Mickelson	Email: DJRemediation_Forms@oxy.com	Mobile: ()

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 22664 Initial Form 27 Document #: 402997195

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: 462450	API #: _____	County Name: WELD
Facility Name: HUNT-TANK 5NENE	Latitude: 40.258720	Longitude: -104.792698	
** correct Lat/Long if needed: Latitude: 40.258735		Longitude: -104.792225	
QtrQtr: NENE	Sec: 5	Twp: 3N	Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE	Facility ID: 482122	API #: _____	County Name: WELD
Facility Name: Kern UPPR 41-5 1 O SA Facility	Latitude: 40.258735	Longitude: -104.792225	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENE	Sec: 5	Twp: 3N	Range: 66W 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? 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

Water wells located approximately 750 feet (ft) south and 850 ft north-northwest; Occupied buildings located approximately 100 ft south and 850 ft north; Agriculture to the east and west.

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	TBD	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.

Facility decommissioning activities were completed at the Kern UPRR 41-5 1 O SA Facility on May 3 and May 24, 2022. Groundwater was encountered in the facility excavations at approximately 3.5 ft bgs. Visual inspection and field screening of soil at one aboveground storage tank (AST), one produced water vessel (PWV), one separator, one emission control device (ECD), one meter house, and nine potholes were conducted following removal activities. Soil samples AST01@6"-WP, PWV-B01@4-WP, and PWV-N01@2.5' were submitted for analysis of full list Table 915-1 constituents due to potential impacts. Samples Sep-Inlet@3'-WP, Sep-Outlet@3'-WP, FL01@4', and FL02@4' were submitted for reduced 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), pH, electrical conductivity (EC), sodium adsorption ratio (SAR), and boron to determine if a release occurred. Laboratory analytical results indicated that TPH, TMBs, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and arsenic impacts exceeding the ECMC Table 915-1 allowable levels and/or background levels were present at the AST, PWV, FL01, and FL02 locations. As such, a Form 19 Initial/Supplemental Spill/Release Report (Document No. 403038258) was submitted on May 5, 2022 and the ECMC issued Spill/Release Point ID 482122. The facility soil sample locations are depicted on Figure 1. The PID readings and soil sample results are summarized in Tables 1 and 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 May 3, 2022 and August 5, 2024, excavation activities were conducted to address remaining soil impacts at the former AST, PWV, FL01, and FL02 locations. Confirmation soil samples were collected from the base of the tank battery excavation at depths ranging from 4 ft bgs to 15 ft bgs. Soil samples were submitted for laboratory analysis of the site-specific waste profile following waste profile procedures accepted at the time of sampling, including TPH, BTEX, TMBs, PAHs, pH, boron, and/or select Table 915-1 metals. Initial analytical results indicated that pH and 1-methylnaphthalene impacts exceeding the ECMC Table 915-1 allowable levels or background were present along the northern sidewall. Verification samples were collected to confirm the results. Final results were within the ECMC Table 915-1 allowable levels or background levels at the extents of the excavation. 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 May 25, 2022 and June 24, 2024, six groundwater samples were collected from the facility excavation. The samples were submitted for laboratory analysis of full list Table 915-1 constituents in groundwater. Groundwater was in contact with impacted soil. Background groundwater samples were collected for laboratory analysis of Table 915-1 inorganic constituents in groundwater. Laboratory analytical results indicate that TMBs concentrations exceeding the ECMC Table 915-1 allowable levels are present in groundwater. The excavation groundwater sample and background sample locations are depicted on Figures 1 and 2. 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 August 26, 2022, visual inspection and/or field screening of soils were conducted at four sidewall locations within the cut and cap excavation area. Based on the inspection and screening results, impacted soil was not observed at the screening locations, and no soil samples were submitted for analysis from these areas, in accordance with the ECMC Operator Guidance. A photographic log is attached.

On October 10, 2023, staining was observed during reclamation activities. Two soil samples (SS01@4' and SS02@0.5') were submitted for analysis of full list Table 915-1 constituents to determine if additional impacts were present. Initial results indicated that boron exceeding the allowable level was present at the SS02 location. A verification sample was collected and was within compliance. Metals impacts exceeding the allowable levels and background levels were present at the SS01 location and were excavated as part of the combined facility excavation activities summarized above.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil	NA / ND
Number of soil samples collected <u>105</u>	-- Highest concentration of TPH (mg/kg) <u>658</u>
Number of soil samples exceeding 915-1 <u>91</u>	-- Highest concentration of SAR <u>3.54</u>
Was the areal and vertical extent of soil contamination delineated? <u>Yes</u>	BTEX > 915-1 <u>No</u>
Approximate areal extent (square feet) <u>9900</u>	Vertical Extent > 915-1 (in feet) <u>15</u>
Groundwater	
Number of groundwater samples collected <u>6</u>	ND Highest concentration of Benzene (µg/l) <u> </u>
Was extent of groundwater contaminated delineated? <u>No</u>	ND Highest concentration of Toluene (µg/l) <u> </u>
Depth to groundwater (below ground surface, in feet) <u>4</u>	-- Highest concentration of Ethylbenzene (µg/l) <u>17.7</u>
Number of groundwater monitoring wells installed <u>0</u>	-- Highest concentration of Xylene (µg/l) <u>513</u>
Number of groundwater samples exceeding 915-1 <u>1</u>	NA Highest concentration of Methane (mg/l) <u> </u>
Surface Water	
<u>0</u> Number of surface water samples collected	
<u> </u> 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 background soil sample was collected from the soil used to construct the tank battery for comparison to shallow soil samples collected within the fill material. Eleven background soil samples were collected outside of the facility excavations, eight were collected as part of the Hunt 21-5 wellhead closure activities and six were collected as part of the HSR-Deborrah 7-5 Wellhead closure activities, located in the same quarter section and similar NRCS soil type. The background samples were submitted for analysis of pH, specific conductivity (EC), sodium adsorption ration (SAR), boron, and metals. Results indicated that levels of arsenic and barium are naturally high in the soil used to construct the tank battery and pH, SAR, arsenic, cadmium, hexavalent chromium, lead, and selenium are naturally high in the soil.

One background groundwater sample was collected at the facility and three were collected as part of the HSR-Deborrah 7-5 wellhead closure activities.

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?

Groundwater monitoring wells will be installed to assess the extent and magnitude of any impacts to groundwater. The monitoring well installation scope of work will be provided in a subsequent Form 27 Supplemental report following ECMC approval of the completion of soil assessment and excavation activities.

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 5,627 bbls of water were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 34 bbls of water were removed from the site and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Approximately 3000 cubic yards of impacted soil were removed from the site and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling. Approximately 20 cubic yards of impacted soil were removed from the site and transported to the Front Range Landfill in Erie, Colorado for disposal. Disposal records are kept on file and available upon request. The excavation areas were backfilled and contoured to match pre-existing conditions.

REMIEDIATION 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.

Analytical results indicated that impacts have been remediated and all soil at the final extents of the excavation are within the ECMC Table 915-1 allowable levels or background levels.

In order to determine the extent and magnitude of any dissolved-phase impacts, groundwater monitoring wells will be installed in the source areas, cross-gradient, and downgradient of the excavation footprints. The previously submitted proposed monitoring well locations may be updated based on new excavation information. The monitoring well installation scope of work will be provided in a subsequent Form 27 Supplemental report following ECMC approval of the completion of soil assessment and excavation activities.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes Excavate and offsite disposal

_____ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) 3020

_____ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or ECMC 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.

Groundwater monitoring wells will be installed to assess the extent and magnitude of any impacts to groundwater. Groundwater samples will be collected from the monitoring wells for four consecutive quarters and will be submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, total dissolved solids, chloride ion, and sulfate ion per ECMC Rule 912.a. The monitoring well installation scope of work will be provided in a subsequent Form 27 Supplemental report following ECMC approval of the completion of soil assessment and excavation activities.

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 5,627 bbls of water were removed from the site and transported to the Aggregate Recycle Facility in Weld County, Colorado for recycling. Approximately 3000 cubic yards of impacted soil were removed from the site and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 3020

E&P waste (solid) description Impacted Soil

ECMC Disposal Facility ID #, if applicable: 149007

Non-ECMC Disposal Facility: Front Range Landfill in Erie, CO (20 CY)

Volume of E&P Waste (liquid) in barrels 5661

E&P waste (liquid) description Water

ECMC Disposal Facility ID #, if applicable: 434766

Non-ECMC Disposal Facility: Buffalo Ridge Landfill in Keenesburg, CO (34 bbls)

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 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. 05/04/2022

Actual Spill or Release date, or date of discovery. 05/04/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 05/03/2022

Proposed site investigation commencement. 05/03/2022

Proposed completion of site investigation. 06/02/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/03/2022

Proposed date of completion of Remediation. 03/26/2026

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

Regarding the conditions of approval (COAs) issued by the ECMC for Document No. 403900275:

COA #1: A minimum of one soil sample will be collected from each soil boring located outside of the excavation backfill material during well installation. The samples will be submitted for laboratory analysis of full list Table 915-1 constituents in groundwater.

COA #2: Kerr-McGee has not provided a map with proposed boring/monitoring well locations as part of this Form 27 Supplemental as the monitoring well locations are dependent upon completion of soil assessment activities in order to ensure point of compliance wells are located outside of the excavation footprint. Kerr-McGee will submit a map with proposed boring/monitoring well locations after confirmation from the ECMC that soil assessment and excavation activities are complete at the site.

COA #3: Boring/well construction logs will be provided in a subsequent Form 27 Supplemental report following monitoring well installation activities.

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

Signed: Erik Mickelson

Title: Environmental Lead

Submit Date: 02/12/2025

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: 22664

COA Type

Description

<u>COA Type</u>	<u>Description</u>
0 COA	

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

<u>Att Doc Num</u>	<u>Name</u>
404011325	FORM 27 DENIED
404011338	SOIL SAMPLE LOCATION MAP
404011339	ANALYTICAL RESULTS
404011343	PHOTO DOCUMENTATION
404091588	ANALYTICAL RESULTS
404091590	ANALYTICAL RESULTS
404091591	ANALYTICAL RESULTS
404239074	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 8 Files

General Comments

User Group

Comment

Comment Date

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	If Operator requests to use off-location background samples, Operator shall provide a NRCS map showing all sample points, the distance from the site that the background samples were taken, soil type, and a confirmation of the same land use. Operator shall also provide original laboratory analytical reports.	06/12/2025
Environmental	Background samples TB-BG@6", Native-BG01@3', and Native-BG01@6' were collected from areas on location are not representative of background conditions. These samples shall be omitted from future background determination calculations.	06/12/2025
Environmental	ECMC has denied this form. Re-samples/verification samples of organic exceedances (N12@6') are not considered valid. Operator shall remediate soils in the vicinity of impacts.	06/12/2025

Environmental	Soil sample PWV01-B03@6' is mislabeled in all analytical tables. It should be PWV01-B03@8'. Operator to correct.	06/12/2025
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Total: 4 comment(s)

DENIED