

State of Colorado
Energy & Carbon Management Commission

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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 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>		Phone: <u>(970) 336-3500</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80217-3779</u>		Mobile: <u>(713) 350-4906</u>
Contact Person: <u>Ariana Ochoa</u>	Email: <u>DJRemediation_Forms@oxy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 32231 Initial Form 27 Document #: 403566339

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>LOCATION</u>	Facility ID: <u>327907</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>ASBURY GAS UNIT-62N67W 3SWNW</u>	Latitude: <u>40.169903</u>	Longitude: <u>-104.881589</u>	
	** correct Lat/Long if needed: Latitude: <u>40.169550</u>	Longitude: <u>-104.881250</u>	
QtrQtr: <u>SWNW</u> Sec: <u>3</u> Twp: <u>2N</u> Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>486328</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Asbury Gas UT1/Kniff Facility</u>	Latitude: <u>40.169900</u>	Longitude: <u>-104.881589</u>	
	** correct Lat/Long if needed: Latitude: _____	Longitude: _____	
QtrQtr: <u>SWNW</u> Sec: <u>3</u> Twp: <u>2N</u> Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

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

Domestic water well: multiple domestic wells within 1/4 mile
Surface water: approximately 840' SW
Wetlands: none
Springs: none
Livestock: approximately 650' SW
Occupied building: multiple occupied buildings within 1/4 mile
High Priority Habitat: 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
Yes	GROUNDWATER	TBD	Groundwater samples/laboratory analytical results
Yes	SOILS	24' (N-S) x 9' (E-W) x 5' 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 Asbury Gas UT1/Kniff production facility on February 27, 2024. Groundwater was encountered at approximately 5' below ground surface (bgs) during excavation activities. Visual inspection and field screening of soils at one separator, one produced water vessel (PWV), one meter house, and one aboveground storage tank (AST) was conducted following removal activities and soil samples (SEP-B01@3', SEP-B02@3', PW-B01@4', PW-E01@2', DL-B01@4', and AST-B01@3') were submitted for laboratory analysis to determine if a release occurred. Laboratory analytical results indicated that the pH, SAR, chromium VI, benzene, benzo(a)anth., naphthalene, and TMBs concentrations in soil samples AST-B01@3', SEP-B01@3', and DL-B01@4' exceeded the applicable ECMC Table 915-1 standards and/or background limits. As such, a Form 19-Initial Spill/Release Report (Document No. 403703175) was submitted on March 1, 2024, and the ECMC issued Spill/Release Point ID 486328 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 2-4.

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 April 10, 2024, excavation activities were conducted to address soil impacts at the former AST, separator, and dumpline and confirmation soil samples were collected at depths ranging from 1'- 6' (bgs). Based on waste characterization results (AST-B01@3', SEP-B01@3', and DL-B01@4'), the soil samples were submitted for laboratory analysis of pH, SAR, metals (except cadmium, copper, selenium, silver), BTEX, naph., TMBs, TPH, benzo(a)anth., and/or 1,2-methylnaphthalene using ECMC-approved methods. Analytical results for the soil samples collected from the final excavation extents were in compliance with the applicable ECMC Table 915-1 standards and/or within background limits. Soil analytical results are presented in Table 2-5. The laboratory analytical reports are provided as Attachment A.

Proposed Groundwater Sampling

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

Groundwater was encountered in the dumpline and separator excavation areas at approximately 5 feet bgs. On April 10, 2024, groundwater samples GW-01 and GW-02 were collected from the excavation areas and submitted for laboratory analysis of BTEX, naphthalene, 1,2,4- and 1,3,5-TMB by USEPA Method 8260D. Analytical results indicate that the benzene concentration in groundwater sample GW-01 exceeded the ECMC Table 915-1 standard. Analytical results indicate that groundwater sample GW-02 was in compliance with ECMC Table 915-1 standards. The groundwater sample locations are illustrated on Figure 2 and groundwater analytical results are summarized in Table 6. Future groundwater samples will be submitted for laboratory analysis of the ECMC Table 915-1 groundwater analytical suite.

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 February 27, 2024, visual inspection and field screening of soils was conducted at three sidewalls of the PWV excavation, one former meter house, and one former AST location. Based on the inspection and screening results, hydrocarbon-impacted soil was not observed at the screening locations, and no soil samples were submitted for laboratory analysis from these areas in accordance with the ECMC Operator Guidance for Oil and Gas Facility Closure document. Soil sample location and field screening data are presented in Table 1. Soil analytical results are summarized in Tables 2 through 5. The soil sample and field screening locations are illustrated on figures 2-4. The laboratory analytical report is 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 31

Number of soil samples exceeding 915-1 25

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

Approximate areal extent (square feet) 359

NA / ND

-- Highest concentration of TPH (mg/kg) 0.879

-- Highest concentration of SAR 6.25

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 3

Groundwater

Number of groundwater samples collected 2

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 5

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 1

-- Highest concentration of Benzene (µg/l) 8.27

-- Highest concentration of Toluene (µg/l) 76.5

-- Highest concentration of Ethylbenzene (µg/l) 8.8

-- Highest concentration of Xylene (µg/l) 206

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-BG01@3'-PW-BG03' and PW-BG01@6'-PW-BG03@6' were collected from native material (loamy sand) adjacent to the facility. Additionally, background soil samples WH-BG01@3'-WH-BG06@3' and WH-BG01@6'-WH-BG06@6' were applied from the Asbury Gas Unit 1 wellhead (80' SE) with similar lithology (loamy sand), depth, and land use. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and the ECMC Table 915 -1 Metals in Soils using standard methods appropriate for detecting target analytes in Table 915-1. Analytical results for the background soil samples are presented in Tables 3 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?

Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining groundwater impacts. The temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of the ECMC Table 915-1 groundwater analytical suite.

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.

Between February 27, 2024 and April 10, 2024, approximately 60 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility located in Weld County, Colorado for recycling. Laboratory analytical results indicate that constituent concentrations in the confirmation soil samples collected from the final lateral and vertical extents of the excavation areas were in compliance with ECMC Table 915-1 standards and/or within background limits. However, Kerr-McGee is requesting the Director's approval to address hydrocarbon groundwater impacts through quarterly groundwater monitoring. The excavation areas will be backfilled and contoured to match pre-existing conditions.

REMEDICATION 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 constituent concentrations in the confirmation soil samples collected from the final lateral and vertical extents of the excavation areas were in compliance with ECMC Table 915-1 standards and/or within background limits. However, constituent concentrations in the groundwater samples collected from the excavation areas exceeded the ECMC Table 915-1 standards. Kerr-McGee is requesting the Director's approval to address hydrocarbon groundwater impacts through quarterly groundwater monitoring. Prior to backfilling, approximately 70 pounds of COGAC-pH® activated carbon was added to the groundwater within the excavation area to mitigate remaining hydrocarbon impacts in groundwater. The SDS for the activated carbon is provided as Attachment C. Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the remaining groundwater impacts. Based on the remaining benzene groundwater impacts in the dumpline excavation area, the temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of the ECMC Table 915-1 groundwater analytical suite. Estimated time to attain NFA is TBD based on the groundwater concentrations, the extent of impacted groundwater, and the efficacy of the selected remedial technologies.

Soil Remediation Summary

<input type="checkbox"/> In Situ	<input checked="" type="checkbox"/> Ex Situ
_____ Bioremediation (or enhanced bioremediation)	Yes _____ Excavate and offsite disposal
_____ Chemical oxidation	_____ If Yes: Estimated Volume (Cubic Yards) _____ 60
_____ Air sparge / Soil vapor extraction	_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____ 149007
_____ Natural Attenuation	_____ Excavate and onsite remediation
_____ Other _____	_____ Land Treatment
	_____ Bioremediation (or enhanced bioremediation)
	_____ Chemical oxidation
	_____ Other _____

Groundwater Remediation Summary

No _____ Bioremediation (or enhanced bioremediation)

No _____ Chemical oxidation

No _____ Air sparge / Soil vapor extraction

No _____ Natural Attenuation

Yes _____ Other _____ Activated carbon adsorption

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 at the site to fully define the extent and magnitude of the remaining groundwater impacts. Based on the remaining benzene groundwater impacts in the excavation areas, the temporary groundwater monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of the ECMC Table 915-1 groundwater analytical suite. A groundwater monitoring location figure illustrating the locations of the surveyed temporary monitoring wells will be provided in a Form 27-Supplemental update.

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 & 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: \$ 13500

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 60 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility located in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 60

E&P waste (solid) description impacted soil

ECMC Disposal Facility ID #, if applicable: 149007

Non-ECMC Disposal Facility: _____

Volume of E&P Waste (liquid) in barrels 0

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? 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. 09/28/2023

Actual Spill or Release date, or date of discovery. 02/28/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/27/2024

Proposed site investigation commencement. 02/27/2024

Proposed completion of site investigation. 02/27/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/27/2024

Proposed date of completion of Remediation. 04/10/2024

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

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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: 05/24/2024

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: Kari Brown

Date: 07/31/2024

Remediation Project Number: 32231

COA Type**Description**

	Due to the presence of organic analytes discovered in sample GW-02, Operator will conduct a minimum of four quarters of groundwater monitoring to demonstrate compliance with Table 915-1 in the vicinity of GW-02 in addition to GW-01
	Operator shall provide boring logs in accordance with standard environmental practices. This includes at a minimum; lithology description, USCS classifications, PID readings, sample collection depths, depth to water, and well construction.
2 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**

403799788	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403800270	ANALYTICAL RESULTS
403800271	ANALYTICAL RESULTS
403800273	SITE MAP
403800274	SOIL SAMPLE LOCATION MAP
403800276	SOIL SAMPLE LOCATION MAP
403800279	PHOTO DOCUMENTATION
403802927	OTHER
403802929	SOIL SAMPLE LOCATION MAP
403872448	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 10 Files

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

Environmental	ECMC added Spill ID 486328 and selected Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912. in addition to the current selection.	07/31/2024
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Total: 1 comment(s)