

State of Colorado
Oil and Gas Conservation Commission

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Report taken by:
Candice (Nikki) Graber

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: <u>KERR MCGEE OIL & GAS ONSHORE LP</u>	Operator No: <u>47120</u>	Phone Numbers Phone: <u>(970) 336-3500</u> Mobile: <u>(970) 515-1698</u>
Address: <u>P O BOX 173779</u>		
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80217-3779</u>		
Contact Person: <u>Gregory Hamilton</u> Email: <u>Gregory_Hamilton@oxy.com</u>		

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 22910 Initial Form 27 Document #: 403018944

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>TANK BATTERY</u>	Facility ID: <u>418845</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>RIVERBEND 25-12</u>	Latitude: <u>40.064967</u>	Longitude: <u>-104.837339</u>	
** correct Lat/Long if needed: Latitude: <u>40.064822</u>		Longitude: <u>-104.839170</u>	
QtrQtr: <u>NWSE</u> Sec: <u>12</u> Twp: <u>1N</u> Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			
Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>482129</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Riverbend Tank Battery AST Release</u>	Latitude: <u>40.064847</u>	Longitude: <u>-104.839192</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESW</u> Sec: <u>12</u> Twp: <u>1N</u> Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

SITE CONDITIONS

General soil type - USCS Classifications SC

Most Sensitive Adjacent Land Use Crop land

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

The nearest domestic water well is located approximately 220 feet north of the facility.
Surface water is located approximately 370 feet north of the facility.
A wetland is located approximately 1,050 feet east of the facility.
The facility is located within a designated high priority habitat.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | |
| <input checked="" type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input checked="" type="checkbox"/> Condensate | <input type="checkbox"/> Pigging Waste | |
| <input type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash | |
| <input type="checkbox"/> Drill Cuttings | <input type="checkbox"/> Spent Filters | |
| | <input type="checkbox"/> Pit Bottoms | |
| | <input type="checkbox"/> Other (as described by EPA) | |

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	32' (N-S) x 23' (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.

Above-ground storage tank (AST) removal activities were completed at the Riverbend 10, 22, 25-12 O SA production facility location on May 4, 2022. Groundwater was not encountered during AST removal activities. Visual inspection and field screening of soils at five (5) former AST locations was conducted following removal activities, and 5 soil samples were collected at a depth of approximately 3 inches below ground surface (bgs). The soil samples were submitted for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), 1,2,4- and 1,3,5-trimethylbenzene (TMB), naphthalene, total petroleum hydrocarbons (TPH) - gasoline range organics (GRO: C6-C10) by USEPA Method 8260D, TPH - diesel range organics (DRO: C10-C28) and oil range organics (ORO: C28-C40) by USEPA Method 8015D. Based on field observations and PID readings, soil sample AST-B07@3" was selected for waste characterization purposes, and was submitted for laboratory analysis of the full Table 915-1 analytical suite, using standard methods appropriate for detecting the target analytes. Laboratory analytical results indicated that impacted soil was present as sample location AST-B07@3" due to BTEX, TMB, TPH, and polycyclic aromatic hydrocarbon (PAH) concentrations above the applicable COGCC Table 915-1 standards. As such, a Form 19-Initial Supplemental Spill/Release Report (COGCC Document No. 403039068) was submitted on May 5, 2022, and the COGCC issued Spill/Release Point ID 482129. 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 are presented in Table 1. The soil sample and field screening locations are illustrated on Figures 2 and 3.

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 June 10 through July 1, 2022, excavation activities were conducted to address remaining soil impacts below the former AST location, and four (4) soil samples were collected from the sidewalls of the final excavation area. Based on the waste characterization results for sample AST-B07@3", the confirmation soil samples were submitted for laboratory analysis of BTEX, TMB, TPH, and PAHs. Analytical results indicated that constituent concentrations in the 4 confirmation soil samples were in compliance with COGCC Table 915-1 standards. Impacted material was removed to the tank battery secondary containment liner on the western sidewall and excavation base at approximately 5 feet bgs. The liner was verified to be in tact, and as such no further confirmation soil samples were collected from these areas. Soil analytical results are summarized in Tables 2 through 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 not encountered during AST removal or subsequent excavation activities.

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 May 4, 2022, visual inspection and field screening of soils was conducted at 5 former AST locations. Based on the inspection and screening results, hydrocarbon impacted soil was not observed at these soil screening locations. On June 10, 2022, visual inspection and field screening of soils was conducted at 4 sidewall locations within the AST excavation area. Based on field observations and elevated PID readings, soil samples were not collected from the sidewall screening locations, and additional over-excavation activities were conducted to address the remaining soil impacts. Soil sample location and field screening data are presented in Table 1. Soil analytical results are presented in Tables 2 through 5. The soil sample and field screening locations are illustrated on Figures 2 and 3. The laboratory analytical reports are 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 10
Number of soil samples exceeding 915-1 2
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 640

NA / ND

-- Highest concentration of TPH (mg/kg) 5691
-- Highest concentration of SAR 2.5
BTEX > 915-1 Yes
Vertical Extent > 915-1 (in feet) 5

Groundwater

Number of groundwater samples collected 0
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet)
Number of groundwater monitoring wells installed
Number of groundwater samples exceeding 915-1

Highest concentration of Benzene (µg/l)
Highest concentration of Toluene (µg/l)
Highest concentration of Ethylbenzene (µg/l)
Highest concentration of Xylene (µg/l)
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 AST-BG01@3" - AST-BG04@3" were collected from native material adjacent to the former AST locations. The background soil samples were submitted for laboratory analysis of the Soil Suitability for Reclamation Parameters and total metals using standard methods appropriate for detecting the target analytes in Table 915-1. Analytical results for the background soil samples are presented in Tables 4 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?

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.

On June 10 through July 1, 2022, approximately 45 cubic yards of impacted material were removed via hydro-excavation activities and transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling; approximately 90 cubic yards of impacted material were excavated and transported to the Front Range Landfill in Erie, Colorado for disposal. The northeastern-most AST will be replaced, and the former AST area will be contoured and re-graded to match preexisting site conditions; the remaining production facility infrastructure will remain in-place.

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 soils in the excavation area have been remediated to be in compliance with the COGCCC Table 915-1 standards or removed to the tank battery secondary containment liner on the western sidewall and excavation base at approximately 5 feet bgs, which was verified to be in tact; therefore no impacted soil remains at the former AST location. Groundwater was not encountered during AST removal or subsequent excavation activities. Based on the analytical and soil screening data presented herein, assessment is complete at this site and no further activities are required. As such, Kerr-McGee is requesting a No Further Action (NFA) determination for this location.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) _____ 135

_____ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or COGCC Facility ID # _____ 434766

_____ 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.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other Final Report

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 NFA Request

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 Colorado Oil and Gas Conservation Commission.

Operator anticipates the remaining cost for this project to be: \$ 0

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 45 cubic yards of impacted soil were transported to the Kerr-McGee Aggregate Recycle Facility in Weld County, Colorado for recycling.

Volume of E&P Waste (solid) in cubic yards 135

E&P waste (solid) description Impacted soil

COGCC Disposal Facility ID #, if applicable: 434766

Non-COGCC Disposal Facility: Front Range Landfill - Erie, Colorado

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

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

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

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? Yes

Is additional groundwater monitoring to be conducted? _____

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.

Facility infrastructure will remain in place. The site will be reclaimed in accordance with COGCC 1000 Series Reclamation Rules following future facility decommissioning activities.

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. 05/05/2022

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). 05/04/2022

Proposed site investigation commencement. 05/04/2022

Proposed completion of site investigation. 07/01/2022

REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/04/2022

Proposed date of completion of Remediation. 07/01/2022

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

Based on the analytical and field screening data provided herein, Kerr-McGee is requesting an NFA determination for this location.

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 Consultant

Submit Date: 08/02/2022

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: Candice (Nikki) Graber

Date: 09/09/2022

Remediation Project Number: 22910

Condition of Approval**COA Type****Description**

	Based on the information presented, it appears the Spill was fully contained within a lined secondary containment and there was no contact with soil. No further action is necessary at this time and the COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if groundwater is found to be impacted, then further investigation and/or remediation activities may be required.
1 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**

403117895	FORM 27-SUPPLEMENTAL-SUBMITTED
403117907	PHOTO DOCUMENTATION
403117908	SITE MAP
403117909	SOIL SAMPLE LOCATION MAP
403117910	SOIL SAMPLE LOCATION MAP
403117911	ANALYTICAL RESULTS
403117912	ANALYTICAL RESULTS

Total Attach: 7 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)