

State of Colorado Oil and Gas Conservation Commission

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FOR OGCC USE ONLY

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Project 9407
Remediation 200438326
Spill 443083
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SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

OGCC Employee:

Spill Complaint
Inspection NOAV

Tracking No:

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

Spill or Release Plug & Abandon Central Facility Closure Site/Facility Closure Other (describe):

GENERAL INFORMATION

OGCC Operator Number: 47120
Name of Operator: Kerr-McGee Oil and Gas Onshore LP
Address: P.O. Box 173779
City: Denver State: CO Zip: 80217-3779
Contact Name and Telephone: Name: Phillip Hamlin
No: (970) 336-3500
Fax: (970) 336-3656
API/Facility No: 443083
County: Weld
Facility Name: HSR-Sekich-63N67W/19SWNW
Well Name:
Well Number:
Location (QtrQtr, Sec, Twp, Rng, Meridian): NWNW Sec 19-T3N-R67W
Latitude: 40.215889 Longitude: -104.938253

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): Oil and Produced Water
Site Conditions: Is location within a sensitive area (according to Rule 901e)? [X] Y [ ] N If yes, attach evaluation. Groundwater < 20 ft.
Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Agriculture
Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Clay, Sandy Clays, and Sandy Loam
Potential receptors (water wells within 1/4 mi, surface waters, etc.): Water well approximately 570' NW, surface water approximately 1,680' SE, wetlands approximately 3,780' NW, livestock approximately 1,180' N, building approximately 850' S, and groundwater approximately 7.5' below ground surface (bgs).
Description of Impact (if previously provided, refer to that form or document):
Impacted Media (check): Extent of Impact: How Determined:
[X] Soils 36' N-S x 30' E-W x 8.5' deep (Maximum Extent) Collected soil samples for laboratory analysis
[X] Groundwater See attached data Collected groundwater samples for laboratory analysis

REMEDATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
While deconstructing the tank battery at the HSR-Sekich-63N67W/19SWNW location, soil with historical petroleum hydrocarbon impacts was encountered beneath the production tanks. The petroleum hydrocarbon impacted soil was excavated. Impacted groundwater was encountered in the excavation at approximately 7.5 feet bgs. A topographic Site Location Map depicting the general location of the release is provided as Figure 1.
Describe how source is to be removed:
Soil and groundwater samples were collected from the excavation and submitted for laboratory analysis. Laboratory analytical results for the soil samples indicated that total petroleum hydrocarbons, benzene, toluene, ethylbenzene, and total xylenes (BTEX), pH, and specific conductivity levels were in compliance with the Colorado Oil and Gas Conservation Commission Table 910-1 allowable levels at the extent of the excavation. Soil was excavated into the phreatic zone to address potential hydrocarbon impact that may have been present below the current groundwater table due to seasonal fluctuations. Groundwater was encountered in the excavation at approximately 7.5 feet bgs. Laboratory analytical results for groundwater sample GW01 indicated that benzene and total xylenes concentrations exceeded the Colorado Groundwater Quality Standards at concentrations of 45.7 micrograms per liter (µg/L) and 3,090 µg/L, respectively. Approximately 270 cubic yards of impacted soil were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for disposal. Prior to backfilling the excavation, 150 pounds of COGAC®, an activated carbon-based bioremediation product, was applied to the excavation groundwater and clean backfill through a series of lifts to ensure distribution through the phreatic zone.
The general site layout, excavation dimensions, and soil and groundwater sample locations are depicted on the Excavation Site Map provided as Figure 2. The excavation soil and groundwater sample analytical results are summarized in Tables 1 and 2, respectively. The laboratory analytical reports are attached.
Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:
The impacted soil was transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for disposal.



Tracking Number: \_\_\_\_\_  
 Name of Operator: \_\_\_\_\_  
 OGCC Operator No: \_\_\_\_\_  
 Received Date: \_\_\_\_\_  
 Well Name & No: \_\_\_\_\_  
 Facility Name & No.: \_\_\_\_\_

**REMEDIATION WORKPLAN (CONT.)**

OGCC Employee: \_\_\_\_\_

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):  
 Groundwater monitoring wells will be installed at the site to fully define the extent and magnitude of the release. The monitoring wells will be surveyed so that the groundwater flow direction can be accurately determined. Groundwater monitoring activities will be conducted on a quarterly basis and all groundwater samples will be submitted for laboratory analysis of BTEX.

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. Use additional sheet for description if required.  
 The site was restored to its pre-release grade. The Kerr-McGee facility was reconstructed at the site.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.  
 Is further site investigation required?  Y  N If yes, describe:  
 After installing the monitoring wells and establishing points of compliance, groundwater monitoring will continue on a quarterly basis.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):  
 The impacted soil was transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado, for disposal.

**IMPLEMENTATION SCHEDULE**

Date Site Investigation Began:	<u>8/26/2015</u>	Date Site Investigation Completed:	<u>Active</u>	Remediation Plan Submitted:	_____
Remediation Start Date:	<u>8/26/2015</u>	Anticipated Completion Date:	<u>TBD</u>	Actual Completion Date:	_____

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.  
 Print Name: Phillip Hamlin  
 Signed:  Title: Senior HSE Representative Date: 12/10/15  
 OGCC Approved: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_