

State of Colorado
Oil and Gas Conservation Commission

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FOR OGCC USE ONLY

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Project 9266
Document 200437398
Spill 442349

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: <u>47120</u>	Contact Name and Telephone
Name of Operator: <u>Kerr-McGee Oil & Gas Onshore LP</u>	Name: <u>Phillip Hamlin</u>
Address: <u>P.O. Box 173779</u>	No: <u>(970) 336-3500</u>
City: <u>Denver</u> State: <u>CO</u> Zip: <u>80217-3779</u>	Fax: <u>(970) 336-3656</u>
API/Facility No: <u>317980</u>	County: <u>Weld</u>
Facility Name: <u>Harold R Mixon Gas Unit-62N67W/25SSWSW</u>	Facility Number: _____
Well Name: _____	Well Number: _____
Location (QtrQtr, Sec, Twp, Rng, Meridian): <u>SWSW Sec 25-T2N-R67W</u>	Latitude: <u>40.103566</u> Longitude: <u>-104.845464</u>

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)? Y N If yes, attach evaluation. Groundwater < 20 ft.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Rangeland and Pasture

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Fine Grained Sand and Clayey Sand

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Buildings approximately 350' northeast, water well approximately 350' northeast, surface water approximately 225' east, livestock approximately 390' southeast, and excavation groundwater approximately 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:
<input checked="" type="checkbox"/> Soils	<u>36' N-S x 35' E-W x 6' deep (Maximum Extent)</u>	<u>Collected soil samples for laboratory analysis</u>
<input type="checkbox"/> Vegetation	_____	_____
<input checked="" type="checkbox"/> Groundwater	<u>See attached data</u>	<u>Collected groundwater samples for laboratory analysis</u>
<input type="checkbox"/> Surface water	_____	_____

REMEDIATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

During abandonment activities at the Harold R Mixon Gas Unit-62N67W/25SSWSW tank battery, petroleum hydrocarbon impacted groundwater was encountered while removing a produced water sump. There were no indications that the dumplines or produced water sump were leaking. The volume of the release is unknown. Groundwater was encountered in the excavation at approximately 5 feet bgs. One groundwater sample was collected and submitted for laboratory analysis for benzene, toluene, ethylbenzene, and total xylenes (BTEX). Laboratory analytical results received on July 2, 2015 indicated that benzene and total xylenes concentrations exceeded the Colorado Groundwater Quality Standards (CGWQS). A topographic Site Location Map showing the general location of the release is attached as Figure 1.

Describe how source is to be removed:

Six confirmation sidewall soil samples (N01@4', E01@4', E02@4', S01@4', W01@4', and W02@4') were collected from the excavation and submitted for laboratory analysis of total petroleum hydrocarbons (TPH), BTEX, pH, and specific conductivity (EC). Laboratory analytical results indicated that TPH, BTEX, pH, and EC levels were less than or within Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 allowable levels at the excavation extent. Groundwater was encountered in the excavation at approximately 5 feet bgs. Laboratory results for the excavation groundwater sample (GW01) indicated that the benzene and total xylenes concentrations exceeded the CGWQS at concentrations of 115 micrograms per liter (µg/L) and 1,840 µg/L, respectively. Approximately 280 cubic yards of impacted soil were removed from the excavation and transported to the Kerr-McGee land treatment facility in Weld County, Colorado for disposal. One hundred pounds of COGAC®, a carbon-based bioremediation product, were applied to the open excavation. The general site layout, excavation dimensions, and soil and groundwater sample locations are shown on the Excavation Site Map attached as Figure 2. The confirmation excavation soil and groundwater 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.):

Four existing groundwater monitoring wells (MW01, MW03, MW04, and MW05) at the site from a previous groundwater investigation (COGCC Remediation #4352) were utilized for this assessment. On August 10, 2015, monitoring wells MW01, MW03, MW04, and MW05 were sampled and submitted for laboratory analysis of BTEX by United States Environmental Protection Agency Method 8260C. Monitoring well MW02 was destroyed as of the sampling event. Laboratory analytical results indicated that BTEX concentrations were less than the CGWQS and the laboratory reporting limit of 1.0 µg/L. The monitoring well locations are shown on Figure 2. The groundwater sample analytical results are summarized in Table 2 and the laboratory analytical report is attached.

The existing monitoring wells were surveyed on November 4, 2013 during the previous site investigation. The relative groundwater elevation data indicates that the groundwater flow direction is to the east. A Groundwater Elevation Contour Map for the August 2015 monitoring event is provided as Figure 3.

Based on the analytical results and groundwater flow direction, monitoring wells MW01, MW03, MW04, and MW05 have been designated as point of compliance (POC) wells. POC has been established at the site. Destroyed monitoring well MW02 will be replaced. Groundwater monitoring will continue on a quarterly basis.

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 Kerr-McGee facility was deconstructed. The site was restored to its pre-release grade.

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:

The relative groundwater elevation data indicates that the groundwater flow direction is to the east. Based on the analytical results, monitoring wells MW01, MW03, MW04, and MW05 have been designated as POC wells. POC has been established at the site. Destroyed monitoring well MW02 will be replaced. Groundwater monitoring will continue on a quarterly basis. The groundwater sample analytical results are summarized in Table 2 and the laboratory analytical report is attached. A Groundwater Elevation Contour Map is provided as Figure 3.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

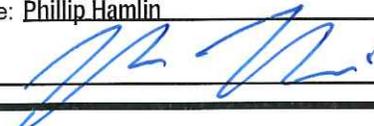
The impacted soil was transported to the Kerr McGee land treatment facility in Weld County, Colorado, for disposal.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began:	<u>7/2/2015</u>	Date Site Investigation Completed:	<u>Active</u>	Remediation Plan Submitted:	_____
Remediation Start Date:	<u>7/2/2015</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: 9/24/15

OGCC Approved: _____ Title: _____ Date: _____