

State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303) 894-2100 Fax 894-2109



FOR OGCC USE ONLY

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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: 1099 18th Street, Suite 1800
City: Denver State: CO Zip: 80202
Contact Name and Telephone: Phillip Hamlin
No: 970-336-3500 Fax: 970-336-3656
API/Facility No: 318081 County: Weld
Facility Name: Elsie I Smith Gas Unit Facility Number: 62N65W33SENE
Well Name: Elsie I Smith Gas Unit Well Number: #1
Location (QtrQtr, Sec, Twp, Rng, Meridian): SENE S33 T2N, R65W Latitude: 40.098481 Longitude: -104.663117

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): Condensate and Produced Water
Site Conditions: Is location within a sensitive area (according to Rule 901e)? [X] Y [] N If yes, attach evaluation.
Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Pasture
Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Clay / Sandy Clay
Potential receptors (water wells within 1/4 mi, surface waters, etc.): The nearest water well is located approximately 1,160 feet west of the site. The nearest surface water is located approximately 1,100 feet south and west of the site.
Description of Impact (if previously provided, refer to that form or document):
Impacted Media (check): [X] Soils [] Vegetation [X] Groundwater [] Surface water
Extent of Impact: See attached data
How Determined: Soil sampling and laboratory analysis Groundwater sampling and laboratory analysis

REMEDIALTION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
Based on data collected by the previous operator (Amoco) of the Elsie I Smith Gas Unit 62N65W33SENE production facility (Site), COGCC requested that Kerr-McGee conduct additional subsurface assessment activities to determine the extent and magnitude of any potential historical soil and/or groundwater petroleum hydrocarbon impacts. On April 24, 2008, historical hydrocarbon impacts were encountered during this limited subsurface site assessment. Soil and groundwater sample locations and the associated laboratory analytical results are summarized in the attached On-Site Soil Treatment Scope of Work.
Describe how source is to be removed:
On August 6, 2014, a supplemental subsurface site assessment was conducted to further delineate the extent of petroleum hydrocarbon impacts at the Site. Following analysis of the assessment results, a remediation work plan was developed for on-site treatment of petroleum hydrocarbon impacts to soil via the application of a chemical oxidation solution. The results of the supplemental site assessment activities and an outline describing the proposed remediation activities are presented in the attached On-Site Soil Treatment Scope of Work.
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.:
Hydrocarbon impacts to soil will be addressed via the on-Site application of a chemical oxidation solution. A vacuum truck will be utilized to remove groundwater accumulated during the treatment activities, and a groundwater amendment (i.e., activated carbon, etc.) may be applied to groundwater in the excavation to enhance petroleum hydrocarbon degradation. Additional groundwater monitoring measures are described on the following page.

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REMEDIATION WORKPLAN (CONT.)

OGCC Employee: _____

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

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.): Two temporary groundwater monitoring wells (AMW01 and AMW02) were installed on April 24, 2008. Thirteen additional temporary groundwater monitoring wells (MW01 through MW13) were installed on August 6, 2014. Groundwater analytical results are summarized in Table 2 of the attached On-Site Soil Treatment Scope of Work. Additional temporary groundwater monitoring and/or remediation wells may be installed at the site to further assess the extent of groundwater impacts. Temporary monitoring wells will be sampled on a quarterly basis and submitted for laboratory analysis of BTEX until concentrations remain below COGCC groundwater standards for four consecutive quarters.

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. Following remediation activities, the final surface grade will be contoured to match the surrounding grade. Reclamation activities at the site will be compliant with COGCC regulations.

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? [X] Y [] N If yes, describe: Additional temporary groundwater monitoring wells may be installed following the completion of on-Site remediation activities. Monitoring and remediation details are presented in the attached On-Site Soil Treatment Scope of Work.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.): Hydrocarbon impacts to soil will be addressed via the on-Site application of a chemical oxidation solution. A vacuum truck will be utilized to transport impacted groundwater to a licensed disposal facility.

IMPLEMENTATION SCHEDULE

Table with 4 columns: Date Site Investigation Began (4/24/2008), Date Site Investigation Completed, Remediation Plan Submitted (8/27/2015), Remediation Start Date (TBD), Anticipated Completion Date (TBD), 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: [Signature] Title: Senior HSE Representative Date: 10/14/15

OGCC Approved: _____ Title: _____ Date: _____