

Kerr-McGee Oil & Gas Onshore LP

Waste Management Plan Drilling Fluids & Associated Drill Cuttings

This document outlines the operational requirements to be used when applying water-based bentonitic drilling fluids and associated drill cuttings to company-owned spread fields. These materials are being applied as a beneficial soil amendment.

Only water-based bentonitic drilling fluids and associated drill cuttings generated by Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee) will be applied at these sites. No other E&P waste shall be deposited at these sites.

Spread Fields (Company Owned)

1. Each spread field will be divided into approximately equal sized pods. A 3-inch maximum lift of water-based bentonitic drilling fluids and associated drill cuttings will be applied.
2. Daily tracking tickets will be used and will include the following information:
 - * name of well where material was generated
 - * date of transfer of the material from the well to the spread field
 - * volume of material taken to the spread field
 - * name of transporter
 - * pod where drilling fluid was applied
3. The volume of material transported to the spread field will be tracked using a spreadsheet to help ensure the 3-inch maximum lift per pod is not exceeded.
4. Conditions permitting Kerr-McGee personnel will ensure the material will be incorporated into the soil within 10 days.

5. Soil sampling will be conducted following incorporation.
 - * A 4-point composite soil sample will be collected from an interval of 0-8 inches below ground surface (bgs), from every pod where material was applied.
 - * At a minimum, soil samples will be analyzed for total petroleum hydrocarbons (TPH – C6-C36), benzene, toluene, ethylbenzene, xylenes (BTEX), electrical conductivity (EC), sodium adsorption ratio (SAR), pH, arsenic, and barium to ensure compliance with COGCC Table 910-1 or applicable background levels of native soils.
6. In the event of any Table 910-1 exceedance, a COGCC Form 4 Sundry Notice will be prepared and submitted (along with supporting documentation) to explain the exceedance and outline appropriate remediation measures.
7. Kerr-McGee/Anadarko is currently utilizing the facilities below for land application of water-based bentonitic drilling fluids and associated drill cuttings.
 - * Drilling Fluid Management Facility 1 (Facility ID 149021)
 - * Drilling Fluid Management Facility 2 (Facility ID 437129)
 - * Drilling Fluid Management Facility 3 (Facility ID 439305)

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Oil-Based Drilling Fluids and the Associated Cuttings

1. All oil-based drilling fluids and the associated cuttings be solidified and disposed at one of the licensed commercial disposal facilities noted below.
 - * Buffalo Ridge, Keenesburg
 - * North Weld Landfill, Ault
 - * Waste Connections, Erie