



**Anadarko E&P Company, LP/Kerr-McGee Oil & Gas Onshore LP**

**Waste Management Plan  
Land Application of Water-Based Bentonitic  
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 private or company-owned spread fields or the land treatment and application of water-based bentonitic drilling fluids and associated cuttings on the pad location where they were generated to maintain compliance with COGCC Rule 907.d.(3). These materials are being applied as a beneficial soil amendment.

The spread fields covered under this Waste Management Plan are detailed in Table 1. Only water-based bentonitic drilling fluids and associated drill cuttings generated by Kerr-McGee Oil & Gas Onshore LP/Anadarko E&P Company, LP (Kerr-McGee/Anadarko) will be applied at these sites. No other E&P waste shall be deposited at these sites. Changes to Table 1 will be provided to the COGCC in a Form 4 Sundry Notice.

**Spread Fields (Private Surface or Company Owned)**

1. Kerr-McGee/Anadarko shall obtain written authorization from the surface owner (if non- Kerr-McGee/Anadarko land) prior to land application of water-based bentonitic drilling fluids and associated drill cuttings. The signed agreement shall state that only Kerr-McGee/Anadarko-generated materials will be accepted and that incorporation of the material will occur within 10 days of application.
2. 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.
3. 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
4. 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.
5. Conditions permitting Kerr-McGee/Anadarko personnel will ensure the material will be incorporated into the soil within 10 days.

6. 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.
7. 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.

#### **Land Treatment and Application Onsite (Private Surface or Company Owned)**

1. Kerr-McGee/Anadarko shall obtain written authorization from the surface owner (if non- Kerr-McGee/Anadarko land) prior to onsite land treatment with solidification and/or bioremediation products and application of water-based bentonitic drilling fluids and associated cuttings to the well pad location. The signed agreement shall state that only Kerr-McGee/Anadarko-generated materials will be accepted and that incorporation of the material after treatment will occur within 10 days, weather permitting, after the conclusion of drilling and/or well completion activities at the well pad location.
2. During treatment, water-based bentonitic drilling fluids and associated cuttings will be stored in a temporary containment area.
3. Soil sampling will be conducted to ensure that resulting concentrations do not exceed Table 910-1 allowable levels or applicable background levels.
4. Soil sampling will be conducted following incorporation.
  - \* A 4-point composite soil sample will be collected from an interval of 0-8 inches bgs, from every well pad where material was applied.
  - \* At a minimum, soil samples will be analyzed for TPH, BTEX, EC, SAR, pH, arsenic, and barium to ensure compliance with COGCC Table 910-1 or applicable background levels of native soils.
5. In the event of any Table 910-1 or applicable background level 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.

**Table 1**  
**Spread Field Locations**  
**Kerr-McGee Oil and Gas Onshore LP**

| <b>Spread Field</b>      | <b>Legals</b>           | <b>Directions</b>                   |
|--------------------------|-------------------------|-------------------------------------|
| Drill Green              | SE Sec 33-T3N-R66W      | WCR 26 x WCR 31, N 0.3 mi, W into   |
| Allan Frank SW           | SW Sec 6-T3N-R66W       | WCR 38 x WCR 25.5, S 0.5 mi, W into |
| Olin Farms               | NE Sec 16-T3N-R66W      | WCR 32 x WCR 31, N 0.6 mi, W into   |
| Moser Farms NE           | NE Sec 25-T3N-R65W      | WCR 30 x WCR 49, W 0.45 mi, S into  |
| Dechant Farms            | SE Sec 36-T3N-R65W      | WCR 22 x WCR 49, N 2 mi, W into     |
| Allan Frank NW           | NW Sec 6-T3N-R66W       | WCR 38 x WCR 25.5, W 100 ft, S into |
| Kevin Moser              | SE Sec 4-T2N-R65W       | WCR 24 x WCR 41, N 0.1 mi, E into   |
| Moser Farms SE           | SE Sec 25-T3N-R65W      | WCR 30 x WCR 49, S 1.15 mi, W into  |
| Moser Farms Dairy        | SW Sec 28-T3N-R65W      | WCR 28 x WCR 41, N 0.2 mi, E into   |
| Miller Farms East & West | NW & SW Sec 24-T3N-R66W | WCR 32 x WCR 35, E 0.5 mi, S into   |
| KMG 19-3                 | SW Sec 3-T1N-R68W       | WCR 12 x WCR 7, E 0.15 mi, N into   |
| Hutchinson               | NE Sec 10-T10N-R67W     | WCR 118 x WCR 21, N 0.5 mi, W into  |
| Dechant Farms NE         | NE Sec 36-T3N-R65W      | WCR 30 x WCR 49, S 1.5 mi, W into   |
| Olin Farms-Liquids       | NE Sec 17-T3N-R66W      | WCR 34 x WCR 29, W 0.75 mi, S into  |
| Dove                     | NE Sec 17-T3N-R66W      | WCR 22 x WCR 37, N 0.75 mi, W into  |
| NRC Section 8, North     | SW Sec 8-T1N-R67W       | WCR 10 x WCR 15, N 0.1 mi, E into   |