Division of Gas and Oil
Landfarming Guidance Document

APPLICABILITY

The following guidance for landfarming of drill cuttings is adopted by the Department of Mines, Minerals and Energy, Division of Gas and Oil to implement the requirements of 4 VAC-150-430. The Department recognizes the potential of landfarming as an alternative means of disposing of drill cuttings generated in the drilling process of gas and oil operations. This policy shall apply to all requests for variances under Section 4 VAC-150-430.A. and to only those sites under permit with the Department of Mines, Minerals and Energy, Division of Gas and Oil.

DEFINITION

Landfarming for the purposes of this policy is the spreading and mixing of drill cuttings generated by the drilling process on permitted gas and oil operations by the Department of Mines, Minerals and Energy, Division of Gas and Oil.

APPLICATION REQUIREMENTS

Before an operator can proceed with landfarming of drill cuttings, the operator, must have submitted and obtained approval from the Director, an application to conduct landfarming procedures. The application may be submitted either with the initial well application or submitted as a supplement to the operations plan if the decision to landfarm by the operator is not known at the time of the initial well application. The application shall contain, at a minimum, the following information.

- **A site plan showing the area to be landfarmed, buffer zones to be maintained, and sediment control structures, should they be required**
- **Baseline analysis of soils into which cuttings are to be incorporated, method of analysis, and date of sampling**
- **Analysis of the drill cuttings, method of analysis used and the date of sampling of the drill cuttings or the procedure to be utilized**
- **Authorization of the landowner to landfarm, if permit is on actively farmed land**
- **A brief description of procedures, including spreading techniques, incorporation method, erosion and sediment control methods to be used, if required, approximate volume of cuttings to be landfarmed, and objective ratio of cuttings to soil in the zone of incorporation**

REQUIRED CONDITIONS FOR LANDFARMING

The following conditions are placed on all approved applications for landfarming.

- **Landfarming shall be conducted only once on a permitted site and shall be conducted only for the disposal of drill cuttings generated for that particular permitted site**
- **Prior to landfarming the drill cuttings, all fluids shall be separated from the cuttings to the extent practicable. The separated fluids shall be disposed of in accordance with 4 VAC-150-420 of the Regulations for the disposal of fluids.**
- **Drill cuttings shall be spread evenly over the permitted site and immediately incorporated into the native soil or substitute soil approved by the Director. Incorporation of the cuttings shall be accomplished by using a disc or other mechanical means to ensure thorough mixing of the soil and cuttings. Variances for procedure of spreading of the cuttings may be granted should the applicant through its soil sampling justify a different soil to cuttings ratio needed for the site.**
- **Landfarming may take place only when the seasonal high water table on the permitted site is at a depth greater than 18". Verification of the depth to water table must be submitted to the Division no more than seven days prior to the initiation of landfarming. Verification shall include the date and location of borings and the results of the borings.**
- **A 50' buffer zone shall be maintained between all property lines and surface water courses from the area proposed for landfarming.**
- **Should the area to be landfarmed be subject to runoff, all erosion and sediment control structures must be maintained until the site is stabilized.**
- **Should landfarming be proposed for actively farmed land, either for pasture or crops, the applicant must first obtain a written statement from the landowner consenting to the application of the drill cuttings and the procedures to be utilized. The signed statement must be submitted with the application.**

- **The applicant shall, within 20 days following the incorporation of the drill cuttings, conduct soil samplings of the landfarmed area which is representative of the entire area. Such analysis shall be submitted to the Division. Should the analysis indicate that remedial action is required, the applicant shall immediately begin such action when notified by the Division. The Director may require further testing of the soil should he deem necessary.**

TESTING AND STANDARD REQUIREMENTS

All testing procedures and analysis of the tests shall be performed by an independent laboratory utilizing methods which have been approved and are accepted methods of testing by the scientific community and the regulatory bodies for that particular testing requirement. For testing the following methods shall be used.

- **Representative soil samples shall be obtained from the area to be landfarmed prior to any ground disturbance activity. Should more than one soil type be present, each type shall be sampled independently and analyzed to provide the baseline data. Should the applicant wish to apply for landfarming of the cuttings after ground disturbing activity has occurred, the applicant may submit an alternative plan for soil sampling to the Director for consideration.**

- **All drill cuttings shall be analyzed for landfarming suitability and necessary dilution rate.**

The following standards shall not be exceeded in the zone of cuttings incorporation.

Parameter	**Standard**
pH	**6-7.5***
Oil and Grease	**□ 3.0%**
Electrical Conductivity	**□ 10 mmhos/cm**
Sodium Absorption Ratio	**□ 12**
Exchangeable Sodium Percentage	**□ 15%**
Metals (ppm)	
As	**□ 10**
Ba	**□ 2000**
Cd	**□ 10**
Cr	**□ 1000**
Pb	**□ 1000**
Hg	**□ 10**
Se	**□ 10**
Ag	**□ 200**
Zn	**□ 500**

***The applicant may apply for a variance to the pH standard, should the baseline analysis show that the soil in its natural state differs significantly from the standard.**

NOTIFICATION REQUIREMENTS

The applicant shall notify the Division at least 48 hours prior to the commencement of landfarming activity.