

Policy Memorandum No. 3 to Mine Operators

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TO: All Mine Operators and Lignite Energy Council

FROM: Commissioners Wefald, Hagen and Reinbold

SUBJECTS: 1) Covering Toxic-Forming Materials with Nontoxic Material and
2) Covering Combustible Materials with Noncombustible Material

Part 1 - Covering Toxic-forming Materials

Section 69-05.2-21-03 of the North Dakota Administrative Code (NDAC) requires the operator to cover any toxic-forming materials that are exposed, used, or produced during mining with an adequate cover of nontoxic material. As defined by NDAC 69-05.2-01-02 (113), toxic-forming materials means earth materials or wastes which, if acted upon by air, water, weathering, or microbiological processes, are likely to produce chemical or physical conditions in soil or water that are detrimental to biota or uses of water.

For the purpose of this policy, "nontoxic" material or cover means any suitable plant growth material (SPGM) or overburden materials that have an electrical conductivity of the saturation extract of less than 6 millimhos per centimeter and a sodium adsorption ratio of less than 12. This includes topsoil, subsoil and other suitable strata. "Other suitable strata" means overburden materials (other than topsoil and subsoil) that have an electrical conductivity of the saturation extract of less than 6 millimhos per centimeter and a sodium adsorption ratio of less than 12.

Part 1-A - Sodic Spoil

Based on the definition of toxic-forming materials and on research conducted in North Dakota, sodic spoil is the only common toxic forming material exposed, used or produced during mining. Therefore, mine operators will be required to place a cover of "nontoxic" material over sodic spoils (sodium adsorption ratios of 12 and greater). The required cover thickness will vary depending on the degree of sodicity. With increasing sodicity in the spoil, increasing thicknesses of "nontoxic" cover will be required.

Part I-A(I) - Method 1 for Sodic Spoil

If the operator respreads SPGM based on the graded spoil characteristics as specified under NDAC 69-05.2-15-04 (4)(a)(2), "nontoxic" cover requirements for sodic spoil will be met.

Part 1-A(2) - Method 2 for Sodic Spoil

If the operator chooses to use the other SPGM respreading option [NDAC 69-05.2-15-04(4)(a)(1)], the following "nontoxic" cover thicknesses are required for the different sodium adsorption ratio (SAR) levels:

1. If the final graded spoil has a projected (or actual) SAR between 12 and 20 and a saturation percentage less than 95%, an average 36-inch cover of "nontoxic" material will be required.
2. If the final graded spoil has a projected (or actual) SAR between 12 and 20 and a saturation percentage equal to or greater than 95%, an average 42-inch cover of "nontoxic" material will be required.
3. If the final graded spoil has a projected (or actual) SAR greater than 20, an average 48-inch cover of "nontoxic" material will be required.

As you will note, these SAR levels and cover requirements are consistent with NDAC 69-05.2-15-04(4)(a)(2)).

The premine overburden analyses must be used to project the SAR and saturation percentage of the graded spoil for determining the required cover thickness[es]. The plans for providing the necessary "nontoxic" cover thickness[es] must be specified in the reclamation plan for each permit [NDAC 69-05.2-09-11(7)]. These plans will be evaluated by the Commission during the review of the permit application (or an appropriate revision to an existing permit).

Also, when determining the volume of material needed to provide the required "nontoxic" cover, the operator must take into account any net compaction that may occur during the handling process. This compaction factor must be specified in the permit.

Under the NDAC 69-05.2-15-04(4)(a)(1) option, all available topsoil and subsoil must be removed, saved and respread (although this volume may be greater than that needed to achieve the required cover thickness[es]). If the soil survey indicates there will be insufficient topsoil and subsoil to provide the required "nontoxic" cover, "other suitable strata" must be identified and saved to the extent necessary for achieving the required nontoxic cover. The volume and vertical and areal extent of "other suitable strata" to be saved must be stated and appropriately shown in the permit along with the SPGM inventory.

If the volume of all available "nontoxic" material (SPGM and other suitable strata) is insufficient to achieve the required cover thickness, the Commission will specify a lesser respread thickness based on the available volume of these materials.

"Other suitable strata" can be mixed with subsoil materials provided the physical characteristics of the other suitable strata are similar to the subsoil or more desirable as a plant rooting medium than the subsoil.

In accordance with NDAC 69-05.2-15-04(6), "other suitable strata" (and SPGM) must be respread on the same land ownership from which it was removed, unless agreements allowing soil mixing between land owners are in place.

If the volume of SPGM and/or "other suitable strata" removed is less (because a determination is made that inventoried material is unsuitable) than that needed for the required cover thickness[es], the operator must identify and remove additional other suitable strata to provide the required cover. If the volume of available "other suitable strata" is insufficient to provide the required "nontoxic" cover, the permit must be revised to modify the respread thickness[es].

The operator may choose to sample the final graded spoil to determine if any adjustments to the cover thicknesses required by the permit are appropriate. The sampling plan must be approved by the Commission and the sample analyses must be submitted to the Commission (along with the revised cover thicknesses) prior to respreading SPGM.

The required cover thicknesses will be checked by Reclamation Division staff when the second stage (SPGM respread) of bond release is requested, or sooner if requested by the operator.

Part 1-B - Other Toxic-forming Materials

If it appears that other toxic-forming materials are present within a permit area (such as saline overburden with an electrical conductivity of 8 millimhos per centimeter or greater), the Commission will require an appropriate cover based on the site specific characteristics.

Part 2 - Covering Combustible Materials

NDAC 69-05.2-21-03 requires that all exposed coal seams and any combustible materials be adequately covered with noncombustible material. A minimum three foot cover of noncombustible material will be considered adequate for any exposed coal seam or coal fines disposal area. An adequate cover for other combustible materials will be determined on a case-by-case basis.

Bruce Hagen
Commissioner

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