**Section 332.220 Technical Criteria for Byproduct Material Disposal Sites − Design Criteria**

a) When submitting a proposed method of disposal for evaluation by the Agency, the licensee shall either:

1) Submit to the Agency a plan describing how the licensee will dispose of byproduct material and contaminants below grade; or

AGENCY NOTE: The Agency presumes that disposal of tailings by placement below grade, either in mines or in excavated pits, is the method of disposal that best furthers the objective of containment of byproduct material and contaminants without requiring active maintenance. However, below grade disposal is not the most environmentally sound approach if a groundwater formation is relatively close to the surface or not very well isolated by overlying soils and rock. Geologic and topographic conditions might make full below grade disposal impracticable.

2) Submit to the Agency data that support the licensee's conclusion that disposal below grade is not the most environmentally sound approach, as well as a description of the licensee's alternative method for tailings disposal. The alternative method shall provide for excavation to the greatest degree achievable, given the geologic and hydrologic conditions at the site, so that the size of retention structures and the steepness of slopes of associated exposed embankments shall be minimized. The licensee shall also demonstrate that its proposed above grade disposal program will provide containment of the byproduct material equivalent or superior to that which would be achieved from below grade disposal.

b) Disposal Site Surfaces

1) Embankment and cover slopes shall be relatively flat after final stabilization to minimize the potential for erosion and to provide conservative factors of safety assuring long-term stability. Final slopes shall be contoured to grades that are as close as possible to those that would be provided if byproduct material were disposed of below grade. Slopes shall not be steeper than 10 horizontal to 1 vertical.

2) All disposal site surfaces shall be contoured to avoid areas of concentrated surface runoff or abrupt or sharp changes in slope. In addition to rock cover on slopes, areas toward which surface runoff might be directed shall be well protected with rock cover or rip rap. Overall stability, erosion potential, and geomorphology of surrounding terrain must be evaluated to assure that there are not ongoing or potential processes, such as gully erosion, that would lead to disposal area instability.

c) The disposal site and area, where feasible, shall be designed to incorporate features that will promote deposition. For example, design features that promote deposition of sediment suspended in any runoff that flows into the disposal area might be utilized; the object of such a design feature would be to enhance the thickness of cover over time.

d) The disposal site shall be designed so that the upstream rainfall catchment does not increase surface erosion or flooding of the disposal site.

e) A full self-sustaining vegetative cover shall be established or rock cover employed to control wind and water erosion. However, rock covering of slopes is unnecessary where:

1) top covers are very thick (on the order of 10 m or greater);

2) impoundment slopes are very gentle (on the order of 10 horizontal:1 vertical or less);

3) bulk cover materials have inherently favorable erosion resistance characteristics;

4) there is negligible drainage catchment area upstream of the disposal site; and

5) the topographic features of the disposal site provide wind protection.

f) Where rock cover is employed, in order to avoid displacement of rock particles by human and animal traffic, root invasion, or by natural process, and to preclude undercutting and piping, the following factors shall be accounted for in the rock cover design:

1) Shape, size, composition and gradation of rock particles. Except for bedding material, average particle size shall be at least cobble size or greater;

2) Rock cover thickness and zoning of particles by size;

3) Steepness of underlying slopes; and

4) Individual rock fragments shall be dense, sound and resistant to abrasion, and shall be free from cracks, seams and other defects that would tend to unduly increase their destruction by water and frost actions. Weak, friable or laminated aggregate shall not be used.

(Source: Amended at 32 Ill. Reg. 16765, effective October 6, 2008)