**Section 1816.71 Disposal of Excess Spoil: General Requirements**

a) Excess spoil shall be placed in designated disposal areas within a permit area, in a controlled manner to:

1) Minimize the adverse effects of leachate and surface water runoff from the fill on surface and ground waters;

2) Ensure mass stability and prevent mass movement during and after construction; and

3) Ensure that the final fill is suitable for reclamation and revegetation compatible with the natural surroundings and the approved post-mining land use.

b) Design certification.

1) The fill and appurtenant structures shall be designed using current, prudent engineering practices. A qualified registered professional engineer experienced in the design of earth and rock fills shall seal the design of the fill and appurtenant structures.

2) The fill shall be designed to attain a minimum long-term static safety factor of 1.5. The foundation and abutments of the fill must be stable under all conditions of construction.

c) All vegetative and organic materials shall be removed from the disposal area prior to placement of the excess spoil. Topsoil shall be removed, segregated, and stored or replaced in accordance with Section 1816.22. If approved by the Department, organic material may be used as mulch or may be included in the topsoil to control erosion, promote growth of vegetation, or increase the moisture retention of the soil.

d) Slope protection shall be provided to minimize surface erosion at the site. All disturbed areas, including diversion channels that are not riprapped, or otherwise protected from erosion, shall be vegetated upon completion of construction.

e) The disposal areas shall be located on the most moderately sloping and naturally stable areas available as approved by the Department. Fill materials suitable for disposal shall be placed upon or above a natural terrace, bench or berm if such placement provides additional stability and prevents mass movement.

f) Excess spoil shall be transported and placed in a controlled manner in horizontal lifts not exceeding four (4) feet in thickness, concurrently compacted as necessary to ensure mass stability and prevent mass movement during and after construction; graded so that surface and subsurface drainage is compatible with the natural surroundings; and covered with topsoil or substitute material in accordance with Section 1816.22. The Department may approve a design which incorporates placement of excess spoil in horizontal lifts other than four (4) feet in thickness when it is demonstrated by the operator and sealed by a qualified registered professional engineer that the design will ensure the stability of the fill and will meet all other requirements of this Section.

g) The final configuration of the fill must be suitable for the approved post-mining land use. In addition:

1) No permanent impoundments are allowed on the completed fill. Small depressions shall be allowed by the Department if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation, and if they are not incompatible with the stability of the fill, as set forth in Sections 1816.41(a), 1816.97(a) and 1816.111;

2) Box cut spoils shall blend with undisturbed land with a maximum outslope steepness of twenty-five (25) percent (4h:lv);

3) Other direct cast spoil placed onto unmined land shall be graded so as to reduce the slope to the maximum extent by grading toward and over the mined area, and blending with the unmined land with an outslope that does not exceed fifteen (15) percent; and

4) Drainage from the interior portion of the spoil shall not be directed over the outside slope of the box cut spoil unless an erosion control system is designated to accommodate the runoff from the interior area.

h) Terraces may be constructed on the outslope of the fill if required for stability, control of erosion, to conserve soil moisture, or to facilitate the approved post-mining land use, as set forth in Sections 1816.41(a) and 1816.111(a). The grade of the outslope between terrace benches shall not be steeper than 2h:1v (fifty (50) percent). Terrace(s) are required where the vertical height of the excess spoil exceeds forty (40) feet.

i) Where the slope in the disposal area exceeds lv:2.8h (thirty-six (36) percent), or such lesser slope designated by the Department based on local conditions, keyway cuts (excavations to stable bedrock) or rock toe buttresses shall be constructed to stabilize the fill. Where the toe of the spoil rests on a downslope, stability analyses shall be performed in accordance with 62 Ill. Adm. Code 1780.35(c) to determine the size of rock toe buttresses and keyway cuts.

j) A qualified registered professional engineer or other qualified professional specialist under the direction of a registered professional engineer, experienced in the construction of earth and rockfill embankments, shall periodically inspect the fill during construction. Such inspections shall be made at least quarterly throughout construction and during the critical construction periods. Critical construction periods shall include at a minimum:

1)

A) Foundation preparation, including the removal of all organic material and topsoil;

B) Placement of underdrain and protective filter systems;

C) Installation of final surface drainage systems; and

D) The final graded and revegetated fill.

E) Regular inspections by the engineer or specialist shall also be conducted during placement and compaction of fill materials.

2) The qualified registered professional engineer shall provide to the Department a sealed report within two (2) weeks after each inspection that the fill has been constructed and maintained as designed and in accordance with the approved plan and 62 Ill. Adm. Code 1700 through 1850. The report shall include appearances of instability, structural weakness and other hazardous conditions.

3) The sealed report on the drainage system and protective filters shall include color photographs of the structure taken during and after construction, but before underdrains are covered with excess spoil. If the underdrain system is constructed in phases, each phase shall be sealed separately.

4) Where excess durable rock spoil is placed in single or multiple lifts such that the underdrain system is constructed simultaneously with excess spoil placement by the natural segregation of dumped materials, in accordance with Section 1816.74, color photographs shall be taken of the underdrain as the underdrain system is being formed.

5) The photographs accompanying each sealed report shall be taken in adequate size and number with enough terrain or other physical features of the site shown to provide a relative scale to the photographs and to specifically and clearly identify the site.

6) A copy of each inspection report shall be retained at or near the mine site.

k) Coal processing wastes shall not be disposed of in head-of-hollow or valley fills, and may only be disposed of in other excess spoil fills, if such waste is:

1) Placed in accordance with Section 1816.83;

2) Demonstrated to be nontoxic- and nonacid-forming; and

3) Demonstrated to be consistent with the design stability of the fill.

l) Drainage control. If the disposal area contains springs, natural or manmade watercourses, or wet-weather seeps, the fill design shall include diversions and underdrains as necessary to control erosion, prevent water infiltration into the fill, and ensure stability.

1) Diversions shall comply with the requirements of Section 1816.43.

2) Underdrains shall consist of durable rock or pipe, be designed and constructed using current, prudent engineering practices. The underdrain system shall be designed to carry the anticipated seepage of water due to rainfall away from seeps and springs in the foundation of the disposal area and shall be protected from piping and contamination by an adequate filter. Rock underdrains shall be constructed of durable, nonacid-, nontoxic-forming rock (e.g., natural sand and gravel, sandstone, limestone, or other durable rock) that does not slake in water or degrade to soil material,and which is free of coal, clay or other nondurable material. Perforated pipe underdrains shall be corrosion resistant and shall have characteristics consistent with the long-term life of the fill.

m) The foundation and abutments of the fill shall be stable under all conditions of construction and operation. Sufficient foundation investigation, as well as any necessary laboratory testing of foundation materials, shall be performed in order to determine the design requirements for stability of the foundation. Analyses of foundation conditions shall include the effect of underground mine workings, if any, upon the stability of the fill and appurtenant structures.

n) Excess spoil may be returned to underground mine workings, but only in accordance with a disposal program approved by the Department and MSHA under 62 Ill. Adm. Code 1784.25.

o) Excess spoil that is acid- or toxic-forming or combustible shall be adequately covered with nonacid, nontoxic and noncombustible material, or treated, to control the impact on surface and ground water in accordance with Section 1816.41, to prevent sustained combustion, and to minimize adverse effects on plant growth and the approved post-mining land use as set forth in Section 1816.111(a).

(Source: Amended at 11 Ill. Reg. 8131, effective July 1, 1987)