**Section 817.406 Liner Systems**

a) All units shall be equipped with a leachate drainage and collection system and a compacted earth liner designed as an integrated system in compliance with the requirements of this Section and of Sections 817.407 and 817.408

b) The liner and leachate collection system shall be stable during all phases of construction and operation. The side slopes shall achieve a minimum static safety factor of 1.3 and a minimum seismic safety factor of 1.0 at all times.

c) The liner shall be designed to function for the entire design period.

d) Compacted earth liner standards:

1) The minimum allowable thickness shall be 0.91 meters (3.0 feet).

2) The liner shall be compacted to achieve a maximum hydraulic conductivity of 1x10-7 centimeters per second.

3) The construction and compaction of the liner shall be carried out in accordance with the construction quality assurance procedures of 35 Ill. Adm. Code 811.Subpart E so as to reduce void spaces and allow the liner to support the loadings imposed by the waste disposal operation without settling that causes or contributes to the failure of the leachate collection system.

4) The liner shall be constructed from materials whose properties are not affected by contact with the constituents of the leachate expected to be produced.

e) Slurry trenches and cutoff walls used to prevent migration of leachate:

1) Slurry trenches and cutoff walls built to contain leachate migration shall be used only in conjunction with a compacted earth liner meeting the requirements of subsection (d) above or as part of a remedial action required by 35 Ill. Adm. Code 811.319.

2) Slurry trenches and cutoff walls shall extend into the bottom confining layer to a depth that will establish and maintain a continuous hydraulic connection and prevent seepage.

3) Exploration borings shall be drilled along the route of the slurry trench or cutoff wall to confirm the depth to the confining layer. In situ tests shall be conducted to determine the hydraulic conductivity of the confining layer.

4) Slurry trenches and cutoff walls shall be stable under all conditions during the design period of the facility. They shall not be susceptible to displacement or erosion under stress or hydraulic gradient.

5) Slurry trenches and cutoff walls shall be constructed in conformance to a construction quality assurance plan, pursuant to 35 Ill. Adm. Code 811.Subpart E, that insures that all material and construction methods meet design specifications.

f) The owner or operator may utilize liner configurations other than those specified in this Section, special construction techniques, and admixtures, provided that:

1) The alternative technology or material provides equivalent, or superior, performance to the requirements of this Section;

2) The technology or material has been successfully utilized in at least one application or pilot facility similar to the proposed application;

3) Methods for manufacturing quality control and construction quality assurance can be implemented; and

4) The owner or operator has received written approval from the Agency prior to the start of construction.