**Section 811.317 Groundwater Impact Assessment**

The impacts of the seepage of leachate from the unit shall be assessed in a systematic fashion using the techniques described in this Section.

a) Procedures for Performing the Groundwater Impact Assessment

1) The operator shall estimate the amount of seepage from the unit during operations which assume:

A) That the minimum design standards for slope configuration, cover, liner, leachate drainage and collection system apply; and

B) That the actual design standards planned for the unit apply. Other designs for the unit may be used if determined by the operator to be appropriate to demonstrate the impacts to groundwater, pursuant to subsection (b).

2) The concentration of constituents in the leachate shall be determined from actual leachate samples from the waste or similar waste, or laboratory derived extracts.

3) A contaminant transport model meeting the standards of subsection (c) shall be utilized to estimate the concentrations of the leachate constituents over time and space. The Agency must review a groundwater contaminant transport model for acceptance in accordance with 35 Ill. Adm. Code 813.111.

b) Acceptable Groundwater Impact Assessment

 The groundwater contaminant transport (GCT) model results shall be used in the assessment of the groundwater impact. The groundwater impact shall be considered acceptable if the GCT model predicts that the concentrations of all constituents of the leachate outside the zone of attenuation are less than the applicable groundwater quality standards of Section 811.320, within 100 years of closure of the unit.

c) Standards for the Contaminant Transport Model

1) The model shall have supporting documentation that establishes its ability to represent groundwater flow and contaminant transport and any history of its previous applications.

2) The set of equations representing groundwater movement and contaminant transort must be theoretically sound and well documented.

3) The numerical solution methods must be based upon sound mathematical principles and be supported by verification and checking techniques.

4) The model must be calibrated against site specific field data developed pursuant to this Part.

5) A sensitivity analysis shall be conducted to measure the model's response to changes in the values assigned to major parameters, specified error tolerances, and numerically assigned space and time discretizations.

6) Mass balance calculations on selected elements in the model shall be performed to verify physical validity. Where the model does not prescribe the amount of mass entering the system as a boundary condition, this step may be ignored.

7) The values of the model's parameters requiring site specific data shall be based upon actual field or laboratory measurements.

8) The values of the model's parameters which do not require site specific data shall be supported by laboratory test results or equivalent methods documenting the validity of the chosen parametric values.