**Section 372.240 Loading Factors on Application Fields**

a) General

 The size of the application area shall be based on the limiting characteristic of the treated wastewater and the site. Balances shall be calculated and submitted for water, nitrogen, phosphorus, and 5 Day Biochemical Oxygen Demand (BOD5). Loading rates must be established for each parameter. The critical loading rate will determine the application area required.

b) Water Balance

1) The water balance for the application site shall include the applied treated wastewater, runon from adjacent areas, precipitation, evapotranspiration, permeability, groundwater recharge rate and effect on water table depth and subsurface tile drainage. The system shall be designed so that runoff does not occur as a result of treated wastewater application. Treated wastewater shall not be applied during precipitation events; however, runoff in response to precipitation is acceptable. The water balance shall be calculated on a rational basis for each month and exclude the days on which application cannot occur due to rainfall, frozen or wet ground conditions, cropping practices, high groundwater conditions or wind in excess of design conditions.

2) The design shall provide for alternate wetting and drying periods in order to maintain aerobic conditions in the topsoil, as well as to maintain a viable cover crop.

3) The design daily percolation rate shall not exceed 10% of the minimum soil permeability at the site. The percolation rate calculations shall exclude the days on which application cannot occur due to rainfall, frozen or wet ground conditions, cropping practices, high groundwater conditions or wind in excess of design conditions.

c) Nitrogen Balance

1) On an annual basis, the total nitrogen applied in the treated wastewater shall be within agronomic rates and shall be accounted for by crop uptake, volatilization, denitrification, adsorption, mineralization and metal precipitation. Any application of chemical fertilizer must be accounted for in the design.

2) Land application areas shall be managed according to normal agricultural and horticultural practices, including but not limited to cultivated farmland with harvest, fallow land, set-aside programs, pasture land, golf courses, sod farms, urban parks, or forest preserves.