**Section 604.720 Inactivation of Pathogens**

a) At plants treating surface water or groundwater under the direct influence of surface water, a disinfectant must be added to provide:

1) a minimum 0.5-log inactivation of Giardia lamblia cysts; and

2) a minimum 2-log inactivation of viruses.

b) At plants treating groundwater obtained from unconfined fractured bedrock, groundwater with a total coliform presence, or groundwater treated in basins open to the atmosphere:

1) A 4-log virus inactivation is required; and

2) A second method of inactivation is required in addition to continuous chlorination. Additional methods of inactivation must be approved by the Agency, and may include chlorine dioxide, ozone, ultraviolet light, gravity filtration and membrane filtration.

c) The methodology to determine inactivation of pathogens must be done in accordance with the Disinfection Profiling and Benchmark Guidance Manual, August 1999, USEPA reference for methodology and C x T tables, incorporated by reference in 35 Ill. Adm. Code 601.115.

d) Factors to be considered in determining inactivation include: pH, temperature, form of disinfectant residual, disinfectant residual concentration, flow rate, volume of basins/piping and baffling factors. Baffling factor must be determined according to "Improving Clearwell Design for CT Compliance", incorporated by reference in 35 Ill. Adm. Code 601.115, or a tracer study approved by the Agency.