**Section 604.1150 Fluoride**

a) Basis of Design. Equipment must have the capacity to maintain the fluoride content in the finished water at 0.7 mg/L.

b) Chemical Feed Equipment

1) A free chlorine residual of 10 mg/L must be maintained in solutions prepared from dry chemicals. This chlorine residual must not replace the chlorination requirement of Section 604.725.

2) Chlorine must not be added to hydrofluosilicic or fluorosilicic acid solutions.

3) Diaphragm operated anti-siphon devices must be provided on all fluoride saturator or fluorosilicic acid feed systems as follows:

A) one diaphragm operated anti-siphon device must be located on the discharge side of the feed pump; and

B) a second diaphragm operated anti-siphon device must be located at the point of application unless a suitable air gap is provided.

c) Chemical Feed Methods

1) Fluoride compound must not be added prior to filters at plants that lime soften or coagulate for turbidity removal, and must not be added prior to ion exchange softeners.

2) The point of application, if into a horizontal pipe, must be in the lower half of the pipe, preferably at a 45-degree angle from the bottom of the pipe, and protrude into the pipe one third of the pipe diameter.

3) Water used for sodium fluoride dissolution must be softened if hardness exceeds 75 mg/L as calcium carbonate.

4) Saturators must be provided with a meter and backflow protection on the make-up water line.

d) Secondary Controls. Secondary control systems for fluoride chemical feed devices must be provided as a means of reducing the possibility for overfeed. These may include flow or pressure switches, break boxes, or other devices.

e) Samples must be submitted monthly to a certified laboratory to determine compliance with 35 Ill. Adm. Code 611.125.