**Section 604.130 Operational Testing Equipment**

a) Monitoring Equipment. Community water supplies must have equipment to monitor the water as follows:

1) Plants treating surface water and groundwater under the direct influence of surface water must have the capability to monitor and record the following:

A) chlorine residual, water temperature and pH at locations necessary to evaluate adequate CT disinfection; and

B) turbidity.

2) Plants treating groundwater using iron removal or ion exchange softening must have the capability to monitor and record chlorine residual.

3) Ion exchange plants for nitrate removal must continuously monitor and record the finished water nitrate level.

b) Sampling Taps

1) Smooth-nosed sampling taps must be provided for collecting representative samples of treated and untreated water.

2) When fluoride is added, the sample tap for the finished water must be located after the fluoride solution is added and has thoroughly mixed with the water being fluoridated.

3) Smooth-nosed sample taps for untreated water must be provided at each well or source.

c) For measuring chlorine residual, DPD test equipment or other means approved in "Standard Methods for the Examination of Water and Wastewater", incorporated by reference in 35 Ill. Adm. Code 611.102, must be used.

d) Testing equipment must be available to plants with specific treatment processes, which include:

1) fluoride adjustment − test equipment for measuring levels of fluoride ion;

2) iron removal − test equipment for measuring ferrous and total iron levels;

3) cation exchange softening − equipment for measuring hardness, and chloride concentration;

4) coagulation and filtration − jar testing equipment for determining chemical dosages and equipment for measuring pH, hardness, total and phenolphthalein ("P") alkalinity, nitrate, and nitrite;

5) lime softening − equipment for measuring pH, hardness, and total and phenolphthalein alkalinity forms;

6) reverse osmosis − equipment for measuring total dissolved solids, chlorides and monitoring sulfates;

7) phosphate addition − equipment for measuring both orthophosphates and total phosphates;

8) anion exchange − equipment for continuous monitoring of nitrate concentration must be provided for treated water and finished water after blending;

9)stabilization − equipment for determining the effectiveness of stabilization treatment for parameters that may include temperature, pH, alkalinity, total dissolved solids, chloride, sulfate, calcium hardness and total hardness, expressed as calcium carbonate;

10) chloramination − equipment to measure free chlorine residual, total chlorine residual, monochloramine residual, and free ammonia-N;

11) coagulation using coagulants that contain aluminum – in addition to the equipment described in subsection (d)(4), equipment to measure total and insoluble aluminum;

12) manganese removal − equipment for measuring the concentration of total manganese and soluble manganese; and

13) chlorine dioxide treatment − equipment for measuring chlorine dioxide residual and chlorite ion concentration.