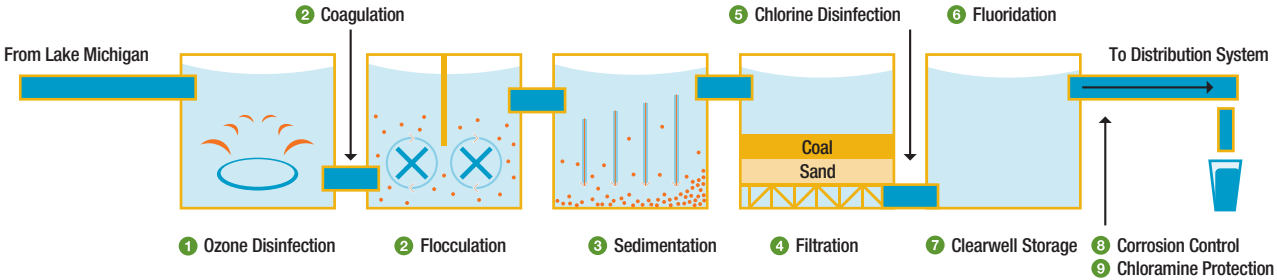
Milwaukee Water Works Drinking Water Treatment Process



① **Ozone Disinfection** Ozone gas is bubbled through the incoming lake water. Ozone destroys disease-causing microorganisms including *Giardia* and *Cryptosporidium*, controls taste and odor, and reduces the formation of chlorinated disinfection byproducts.

② **Coagulation and Flocculation** Aluminum sulfate is added to the water to neutralize the charge on microscopic particles in the water. The water is then gently mixed to encourage the suspended particles to stick together to form floc.

③ **Sedimentation** Sedimentation is the process in which the floc settles out and is removed from the water.

④ **Biologically Active Filtration** The water is slowly filtered through 24" of anthracite coal and 12" of crushed sand to remove very small particles.

⑤ **Chlorine Disinfection** After filtration, chlorine is added as a secondary disinfectant. This provides extra protection from potentially harmful microorganisms.

⑥ **Fluoridation** Fluoride, when administered at low levels, is proven to help prevent tooth decay.

⑦ **Clearwell Storage** Treated water is stored in deep underground tanks and pumped as needed through the distribution system.

⑧ **Corrosion Control** A phosphorous compound is added to help control corrosion of pipes. This helps prevent lead and copper from leaching from plumbing into the water.

⑨ **Chloramine Protection** Ammonia changes the chlorine to chloramine, a disinfectant that maintains bacteriological protection in the distribution system.

The Milwaukee Water Works is a member of the American Water Works Association, the Association of Metropolitan Water Agencies, the Water Research Foundation, and the Wisconsin Water Association.