

How Your Water is Treated

The Madison Water Treatment Plant uses a very common process in treating and purifying water for the Town of Madison and Rockingham County. The treatment process consist of five steps, including Coagulation, Flocculation, Sedimentation, Filtration and Disinfection.

Coagulation

During coagulation, liquid aluminum sulfate (alum) is applied to the untreated water (raw water). When mixed, this forces the tiny particles of dirt in the water to bond together or **coagulate**. Caustic soda is applied to adjust PH which aids in the flocculation process. Chlorine is applied for the deactivation of most microorganisms and to oxidize iron, manganese and organics.

Flocculation

Paddles have been installed inside of large water basins to stir the alum and water mixture. This stirring forces the water and alum to bond together and form large, heavy particles called **floc**.

Sedimentation

As the water and **floc** particles progress through the treatment process, they move into sedimentation basins that slow down the movement of the water. This slowing process allows the heavy **floc** particles to settle to the bottom where they are collected and removed from the water.

Filtration

From the sedimentation basin, the water flows through a filter that is made of layers of anthracite and sand. This filter is designed to remove any remaining particles left in the water.

Disinfection

Once the water is filtered, chlorine is added again to destroy any germs or contaminants that may have passed through the filters and to establish adequate residuals in the distribution system. Following this process, the treated water enters the distribution system and is pumped through more than 36 miles of underground pipes to each home and business. Chlorine residuals are tested weekly throughout the distribution system, and are commonly found between the ranges of 0.20 mg/l – 2.0 mg/l.