

# Treatment



**Pretreatment**



**Pretreatment Flocculation & Settling**



**Lime-Soda Softening**



**Flocculation & Clarification**

The plant receives raw water from four limestone wells, Tawawa Creek, and the Great Miami River. The intake system includes low head dams on the Great Miami River and Tawawa Creek and is designed to permit the selection of water from any source or any combination of sources. The raw water flows by gravity to the raw water pump station where a traveling screen removes sticks, leaves, and other debris. The water is then pumped to the treatment plant.

At the plant, the water moves through pretreatment basins where activated carbon and/or potassium permanganate are added for taste and odor control.

The water then moves into a rapid mix basin where lime and soda ash for softening and aluminum sulfate for coagulation are added to the water and rapidly mixed. The chemically treated water is gently agitated in the flocculation basins where the reactions occur that are necessary for softening and clarification.

After flocculation, the water flows into the settling basins where the flow-through velocities are slowed and the chemicals which have collected with mud, impurities, and the hardness-causing compounds in the water settle to the bottom of the tank. This mixture of chemicals and impurities called sludge is scraped by a traveling bridge scraper to a hopper and pumped to the lagoon for storage.

The clarified water leaves the settling tank and flows to the recarbonation basin where carbon dioxide is added to reduce the pH and stabilize the water.

## Treatment (continued)



**Filter Gallery**



**High Service Pumps**



**Fourth Street Tank (2MGD)**



**Campbell Road Tank (1 MGD)**

The water continues through the plant by piping to the six rapid sand filters. Prior to filtration, chlorine is added to disinfect the water. At the filters, the water moves downward by gravity through 16" of anthracite coal, 12" of sand and a mixture of support gravel. The filtration process removes any remaining suspended material and bacteria still present in the water. After filtration, a fluoride compound is added to the water as it enters a two million gallon clearwell.

As the community requires water, high service pumps supply finished water from the clearwell into the distribution system. Once the water is pumped into the system, it either goes directly to the customer or to two elevated storage tanks that have a combined capacity of 3 million gallons.

Fourth Street Tank, being the larger of these two tanks has the distinction of being the first composite elevated tank built in Ohio and was completed in 1996. This two million gallon tank has a concrete pedestal and a steel bowl.

Campbell Road Tank has a capacity of 1 MGD and has been in service since the mid 1970's.