

The 6-Step Process to Treating Tampa's Water

Where it begins. Tampa's demand for water averages 77 million gallons a day. Most of the daily demand is pumped from the Hillsborough River reservoir. Screens keep water hyacinths and other floating debris from entering the treatment plant intakes.



Step 1 The Hillsborough River has a tea-like color from a naturally occurring organic matter found in Florida streams and rivers. To remove this matter, ferric sulfate and sulfuric acid are added to the water, reacting with the organic matter, and forming particles called floc. This first step is called **Rapid Mix**.

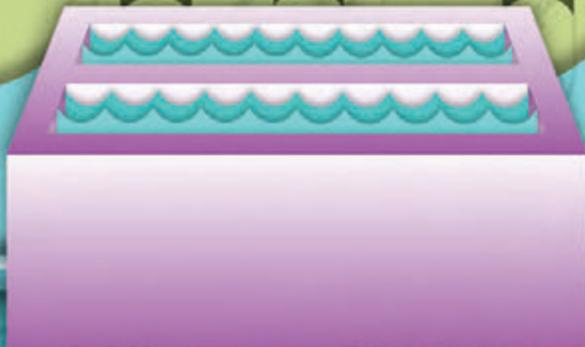


Step 2 Called the **Flocculation** step, polymers are added to the water in this step, allowing the floc particles to become heavier and larger.

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Step 3 After flocculation, the water flows into rectangular settling basins where it the floc settles to the bottom. The floc is then vacuumed and treated and removed while the clear, settled water is collected at the end of the settling basins. This step is called **Sedimentation**.



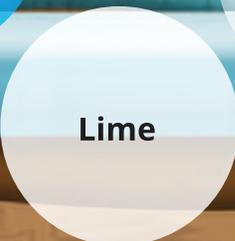
Step 4 The clear, settled water is now treated with ozone, a strong oxidant that destroys harmful bacteria and viruses. Ozone also destroys taste- and odor-causing compounds. Lime is added to the water after ozonation to stabilize the pH balance of the treated water. Fluoride is also added to provide dental benefits in this step, called **Stabilization and Disinfection**.



Ozone



Fluoride



Lime

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Step 5 In the **Filtration** step, the disinfected water is filtered through mixed bed filters containing sand and activated carbon coal to remove any remaining particles.

Step 6 After filtration, chlorine and ammonia are added to the treated water to prepare it for storage. The combination produces a disinfectant called monochloramine. This is the **final disinfection** step and provides the final residual disinfectant for the finished water, which maintains the disinfectant integrity of the water in the distribution system.

Chlorine

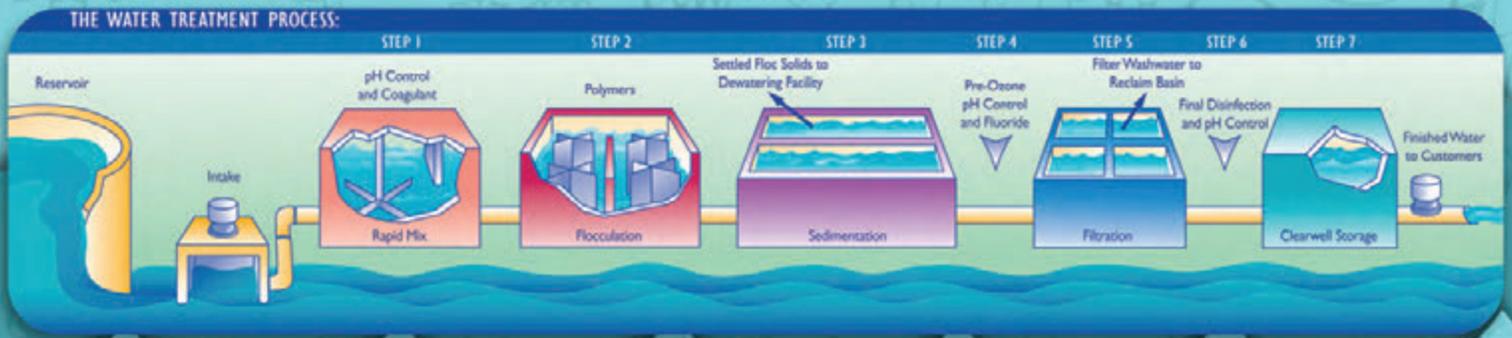
Ammonia

Finished water is stored in large cement underground tanks called **clearwells**. High service pumps send the finished water from storage to distribution to our customers.

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How is Tampa's drinking water tested and monitored?

The City of Tampa has a state-certified laboratory at the **David L. Tippin Water Treatment facility** that continuously analyzes the water quality throughout the treatment process. Every year, more than 11,000 samples are collected and more than 50,000 analyses of both "raw," untreated water, and "finished," treated water.



The sources of drinking water include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring materials and can pick up substances from animals or human activity.

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Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria which may come from sewage treatment plants, septic systems, livestock or wildlife.
- Inorganic compounds, such as salts and metals from storm water runoff, mining or farming.
- Pesticides and herbicides, which may come from agriculture and residential fertilizer uses.
- Organic chemical contaminants, which are by-products of industrial processes and petroleum production.
- Radioactive contaminants, which can be naturally occurring or a result of oil and gas production or mining.

Protecting the Hillsborough River is everyone's responsibility. A major source of water pollution is rainwater runoff from dirty pavement, industrial waste and agricultural areas traveling directly into surface waters. Help protect our water source by using lawn and garden fertilizers and pesticides sparingly, recycle car batteries, used motor oil and other fluids, and taking hazardous household products and electronics to designated collection sites.

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Treating Tampa's Water

Number the steps in the treatment process:

- ___ Sedimentation
- ___ Filtration
- ___ Stabilization and Disinfection
- ___ Rapid Mix
- ___ Final Disinfection
- ___ Flocculation

Match the term with the definition:

- | | | |
|----------------------|--------------------------|--------------------------|
| a) clearwells | b) ozone | c) floc |
| d) fluoride | e) settling basin | f) monochloramine |

- ___ A strong oxidant that destroys harmful bacteria and viruses and also destroys taste- and odor-causing compounds.
- ___ Large cement underground tanks where finished water is stored.
- ___ Added to water to provide dental benefits.
- ___ Formed when ferric sulfate and sulfuric acid are added to the water, reacting with organic matter and forming particles.
- ___ Combination of chlorine and ammonia that produces a disinfectant.
- ___ Area where water floc is collected and clear, settled water is collected.



