

Wastewater Treatment Process



Village of Wrightstown Wastewater Treatment Plant



1. Wastewater entering the plant is collected in the influent lift station.
2. It is pumped up to the Screening Building to remove coarse debris.
3. The screened wastewater flows to the oxidation basin where a mixture of naturally occurring microbes consumes dissolved organic pollutants. An iron chemical is also added to remove phosphorus.
4. A final clarifier in the center of the oxidation basin removes the microbes, leaving highly treated water cleansed of more than 99% of the pollutants.
5. The water is disinfected with ultraviolet light to kill bacteria and viruses.
6. Finally, the water cascades to a release into the Fox River.

7. Residual materials from the treatment process are collected for storage in a tank large enough for 6 months of operation prior to being used as an agricultural soil conditioner at area farms.
8. Plant administrative, operations and laboratory facilities are housed in the Administration Building.
9. Plant maintenance equipment and functions are housed in the Garage Storage Building.

Do you have questions about the Village of Wrightstown wastewater treatment plant? Would you like a plant tour? Please contact us at (920) 532-0434.



What is wastewater and why is it treated?

Wastewater is something each of us creates on a regular basis. Every time you use water to take a shower, wash the dishes, do the laundry, or flush the toilet, the used water becomes dirty wastewater that drains away via the sewer system.

This wastewater contains pollutants that can harm the environment and threaten public health. Therefore, it must be cleansed of contaminants before being returned to our rivers and lakes. The Wrightstown treatment plant processes the wastewater collected from within the Village through a series of cleaning steps that result in the return of safe, highly treated water to the Fox River.



Treatment Plant History

The Village of Wrightstown, located along the banks of the Fox River on the border between Brown and Outagamie Counties, was incorporated as a Village in 1901. The Village traces its roots and name back to Hoel S. Wright, a government surveyor, who was credited with the construction of the first bridge over the Fox River in 1856.



To address public health concerns and nuisance conditions in the river, the Village began treating wastewater at the current site in 1948 with the construction of a rock trickling filter. The plant was subsequently upgraded with construction in 1980 and 1998 with a capacity to treat up to 302,000 gallons per day (gpd).

Given the projected growth in the Village and the aging plant components, the Village undertook a comprehensive Facilities Plan. Completed in 2006, the Facilities Plan recommended that a new treatment plant be constructed on the existing 4 acre site adjacent to the old plant. Completed in 2009, the new 423,000 gpd plant is designed to meet the Village's needs through the year 2028. The treatment plant site will accommodate future growth well beyond the next 20 years, ensuring the Village's place in the thriving Fox River Valley.

Protecting Our Citizens and Environment

The Wisconsin Department of Natural Resources (WDNR) and the US Environmental Protection Agency (EPA) have established rules governing the treatment of wastewater, establishing standards for the return of water to the environment. The laboratory routinely tests samples of wastewater to ensure that the plant performance is better than these standards. The testing results are reported to WDNR each month in accordance with State laws. Ultimately, all of the testing is done to preserve and protect our environment.



Plant Operation

The staff of the treatment plant performs the daily tasks required to keep the plant performance at a high level. The operators need accurate data to monitor the status of the plant components, making sure that all the various processes are running efficiently. Electronic sensors have been located throughout the plant to monitor and control the plant's health. A computer in each building collects the data from the sensors, communicating through a fiber-optic system with the main Control Room in the Administration Building. The operators in the Control Room can observe the status of the entire plant from a single location. The information provided through the computer system allows the operators to make decisions about the plant controls and scheduling equipment maintenance activities.



Recycling Processing and Disposal of Biosolids

As the wastewater treatment process purifies the water, the pollutants removed from the water are collected as residual solids, called biosolids. The biosolids undergo an oxidation process to stabilize the material, killing potential pathogens and reducing odor potential. The treated biosolids are stored as liquid slurry in a covered tank. The finished product is rich in nutrients and organic material similar to peat, making it an excellent soil additive for agricultural use. The material is typically spread on farm fields in the fall and spring, depending on land availability. The biosolids are tested extensively to ensure that all WDNR and EPA regulations governing biosolids use as a fertilizer are met. The recycling of biosolids to agricultural lands represents an environmentally sound use of resources.



The Facts

- Construction was bid in 2008 for a cost of \$4.7 million.
- Construction was financed by a low interest loan from the Wisconsin Clean Water Fund.
- The plant can treat 423,000 gallons on an average day, up to 1.23 million gallons on a peak day.
- The plant can treat and return enough highly treated effluent to the Fox River annually to fill Lambeau Field all the way up to the top bleachers, equivalent to a 50 acre lake to a depth of almost 10 feet.
- Holding capacities of all the tanks total 1.3 million gallons.
- The Village is underlain by 60 miles of sewers collecting wastewater from an area of 4 square miles.
- The collection system includes 6 lift stations.
- The plant's emergency 250 kW generator can provide enough energy to power up to a dozen homes.