

# Waste Water Treatment and Collection



Water, and its conservation is the essence of any wastewater treatment system. Wastewater is composed of 99.9% water. The remaining 0.1%, is organics, nutrients, and other components. However, don't let that point-one-percent figure fool you. Each person in Florida generates about 100 gallons of domestic wastewater each day. This wastewater must be managed to protect public health, water quality, recreation, fish and wildlife, and the aesthetic appeal of our waterways.

When you have over a million gallons of sewage, the figure becomes very significant. For example, one million gallons of sewage will contain about 10 tons of waste. The job of the wastewater treatment plant is to remove as much of that half percent from the sewage as possible, so that the water can be returned to the environment safe and clean.

The City operates the wastewater treatment plant twenty-four hours per day with three eight hour shifts per day. The operators are responsible for setting priorities toward the operation start-up and shut-down of all equipment, making the required adjustments to the equipment and the treatment process to improve the plant's efficiency.

The Holly Hill plant was first built back in the 1960's, and since then we have continued to provide treatment of wastewater to help maintain a safe environment for our community.

The City of Holly Hills system is a 3 million gallon Advanced Wastewater Treatment Plant, with over 120 miles of waste water collection pipes and 28 Lift Stations. The waste water collection system is a series of pipes and pumps that collect the waste water from residences and business throughout the city. Gravity sewer lines carry waste water to lift stations. Once the amount of waste water reaches a certain level the lift stations pump it through force mains to the waste water treatment plant. The waste water treatment process is comprised of three steps which include the removal of large solids and grit, biological treatment where bacteria

break down the organic waste, and the removal of fine solids through a sand filtering process. Influent facilities are the first treatment operations in the Advanced Wastewater Treatment Plant and remove large solids and grit, from the raw wastewater stream, to prevent fouling and abrasion of the downstream pumps, aerators and process tanks. The polished effluent is chlorinated and disposed wither through surface water discharge or as reclaimed water.

## Frequently Asked Questions

### Related Questions

#### Can I flush my old or unused medicines?

Not a good idea. When you flush medication down your drain, it ends up at our treatment facility. While the plant is designed to remove many contaminants from untreated water, it may not filter out the chemicals found in many medications. Some chemicals can remain in the treated water when it is released into the Lake Michigan, our source of drinking water, and harm creatures living in the lake, as well as affecting humans. [Click Here](#) to help find the best method of unused drug disposal.

#### Can I pour grease down the drain?

NO, if the grease is hot let it cool before putting it in a suitable container or can and put it in your garbage. Grease will accumulate in sewer pipes and pumps over time, and cause clogs and back-ups. If you have a grease trap it should be checked and cleaned at least monthly.

#### Are there any special challenges in treating wastewater?

- **Nutrients** - Phosphorus, nitrogen, and other chemical nutrients found in wastewater can damage lakes and rivers. These nutrients need to be changed into less harmful substances or removed before being released into the environment.
- **Toxic Chemicals** - Sometimes wastewater contains hazardous chemicals from industry, pesticides, etc. Controlling these chemicals may require pretreatment of wastewater by industries and the use of advanced (tertiary) treatment methods at the wastewater

treatment plant.

- **Water Infiltration** - Water entering the treatment system through cracks or joints in sewer lines or storm drains places an extra burden on a facility.
- **Changes in Water Flow** - The amount and kind of wastewater entering a treatment plant can change quickly. Plant operators must be ready to respond to these changing conditions.

## **Can I dump gasoline or other household hazardous materials down the drain?**

**NO!** It is never acceptable to dispose of any hazardous chemicals down the drain. Explosive chemicals such as gasoline pose a significant threat to sanitary sewers and should never be dumped down the drain. Explosive vapors can build up in sewers and create a hazardous condition, in addition, these vapors pose a threat to the personnel that maintain the system and could prove fatal in certain situations.

## **Can I pour my old chemicals down the drain?**

NO, some chemicals are difficult to remove from wastewater, hazardous to treatment plant workers, and if they pass untreated through the plant, they can be hazardous to the environment. Don't flush these: Motor oil and gasoline, Solvents, Pesticides and fertilizers, Medicines (antibiotics, prescription meds), Paint, varnish, paint thinner

## **Can I put photographic processing solution down the drain?**

Most photographic processing effluents and wash waters contain chemicals that are biodegradable. They are, therefore, compatible with aerobic (with oxygen) biological treatment systems and are effectively treated when sent to an efficient sewage treatment facility. Permission from the local treatment authority may be needed (a written consent or permit is usually needed and limits what can and can't be discharge). Contact your local authorities to see if you need consent and to determine local discharge limits. **NEVER pour silver-bearing effluents such as used fixers, bleach-fix or stabilizers down the drain. Rather you should use on-site or off-site silver management.**

## Can I put trash down the drain?

NO, paper and plastic trash can clog your sewer lateral or main and should be disposed of in your garbage can. If it is not bio-degradable, put it in the garbage! These are a few examples of trash that should be put in your garbage can or dumpster: Cleaning wipes, handy wipes, toilet cleaners, scrubbing pads, feminine hygiene products, plastics, diapers, clothing, cloths, and rags.

## We keep getting a foul sewer odor in our home. Why is this happening?

Believe it or not, a dry drain can lead to this condition. Drain pipes are constructed to hold a small amount of water. This retained water creates a seal to keep odors from coming up into your house from the sewer system. This water seal can evaporate over time, thus allowing foul odors to come into your house. To remedy this situation, you should pour a little water down your drain each month.

## What causes a sanitary sewer line to back-up?

Most sewer backups happen because the pipe is plugged with debris. However, backups can be caused by several factors, including the condition of the sanitary sewer system itself, natural phenomena such as earth movement or roots, and the incorrect usage of the system by the public.

### Some common backup causes are:

- **Solids/Debris** – Typical solids that build up in the pipe and cause backups are fats, oil, grease (FOG), dirt, hair, bones, sanitary products, paper towels, kitty litter, diapers, broken dishware, garbage, concrete, and debris. When oil or grease is discharged into a sewer system, it will solidify and, after a while, oil and grease can build up and plug drain lines in your home or building. Oil and grease can also plug the sewer lines and clog pump stations owned by the District, thus increasing the maintenance costs to customers. Plugged sewers can cause flooding of nearby homes and businesses as well as result in sanitary sewer overflows.
- **Tree Root Infiltration** – Tree roots can cause backups. Tree roots are attracted to sewer lines because of the sewer waters' warm temperatures and food nutrients found in the sewers. Roots can infiltrate the pipe system and clog the wastewater flow.

## **What do I do if I have a sewer blockage?**

When a stoppage occurs, you should contact the City immediately at 386-248-9463; this number is monitored 24 hours a day, 7 days a week, including holidays. Wastewater personnel will come out to the site and assess the stoppage to determine if the obstruction is on the City's side of the sewer line or the homeowner's sewer service line. The City will clear any blockage that occurs in the City's sewer main. Customers are responsible for blockages that occur in their sewer service line which is located between the City's sewer main (cleanout at property line) and the customer's home.

## **What Happens To The Water I Flush?**

Sanitary sewage wastewater normally flows by gravity through underground pipes to the wastewater treatment plant where the water is treated physically, chemically, and biologically before being discharged back to the environment.

## **What is a sewer lateral?**

A sewer lateral is the privately owned and maintained sewer pipe connecting a building/dwelling to the public sewer main. Different types of material have been used for sewer pipe through the years. In general homes built in the early 1900's to the 1960's were constructed with clay pipe, 1960's with cast iron, and late 1970's to now with plastic PVC or ABS.

## **What is a wastewater collection system?**

A wastewater collection system is a network of sewer lines, manholes, pumping stations and other structures used to collect wastewater and transport it to a treatment plant.

## **What is a Wastewater Lift Station?**

Wastewater lift stations are used for pumping wastewater or sewage to the Wastewater Treatment Plant. The neighborhood collection systems are is mostly "gravity driven" - water

flows downhill, even in the very flat areas of the City. Due to the flat terrain the lift stations are necessary to overcome the depth that would be required if only gravity were used.

Key elements of lift stations include a wet-well (receiving well), equipped with lift pumps and piping with valves, and an equipment control panel. The wastewater is then collected at area lift stations where it is pumped into a system of force mains that lead to the wastewater treatment plant.

## **What should I NEVER flush down the toilet or pour down the drain?**

**DO NOT** flush disposable diapers and baby wipes as they will clog your sewer line. In addition, never pour grease or gummy substances down garbage disposals, toilets, or floor drains. Flammable liquids, i.e. used motor oil, gasoline, paint thinner, etc., should never be poured into your sewer line as they can cause a fire hazard or create a harmful coating on your sewer pipe. Never flush plastic tampon containers, pencils, pins, hypodermic needles, broken glass or other foreign objects that can lodge in your sewer service line and cause a sewer back-up.

## **Where does wastewater come from?**

It comes from:

- Homes – human and household wastes from toilets, sinks, baths, and drains.
- Industry, Schools, and Businesses – chemicals and other wastes from factories, food-service operations, airports, shopping centers, etc.

On average, each person in the U.S. contributes 50-100 gallons of wastewater daily.

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