

# What happens when you flush?

**D**o you ever ponder that question? If so, you are not like everyone else, because most flush and forget. But since you asked, it goes to the City of Pocatello's water pollution control facility.

The water from your shower, the toothpaste from your morning brushing, and most importantly the waste from your toilet together form what is called wastewater. This wastewater flows out of your house through a series of larger and larger pipes to a wastewater treatment plant. In some areas of the city, your wastewater will go to a station that will pump it from a low area to a higher area. If you live in the Indian Hills area, your wastewater will flow through a series of three pump stations before it arrives at the treatment plant and could have traveled for over an hour and a half.

As the wastewater travels through the sewer pipes, it collects things like tissue paper from Mr. Smith's house, coffee grounds from Ms. Jones' house, a small piece of sand, and a piece of cheese and lettuce from the local diner. This wastewater with all of the contaminants reaches the wastewater treatment plant and we have to clean it up before we send it to the Portneuf River.

The city's wastewater treatment plant is a state-of-the-art facility that would cost \$60 million to \$70 million to build today. The original plant was built in 1959 and consisted of several small primary treatment settling tanks, digestion tanks, and chlorination equipment.

## COMMENTARY JON HERRICK



In 1974, the plant was expanded to secondary treatment, which was paid for mostly by grants from the U.S. Environmental Protection Agency with state and local funds paying a portion. The plant has been upgraded in various ways every few years until 2001 when

the City spent about \$8 million rehabilitating aging equipment and processes. In 2004, the plant completed its latest upgrade of \$12 million to allow the plant to remove nitrogen and better remove phosphorus from the wastewater before it is discharged to the Portneuf River.

The first process that the wastewater reaches at the wastewater treatment plant is called Preliminary Treatment. This physical separation of the inorganics from the organics removes the tissue paper, sand, coffee grounds and plastics that come into the plant. This process takes up to 30 minutes to complete.

The next process is to remove the heavy solids by settling them into large tanks called Primary Clarifiers. These solids are sent to another process that decomposes the solids into fertilizer and produces methane gas, which we use to produce electricity in a generator. The Primary Treatment process takes 1-2 hours to complete.

The next step is called Secondary Treatment and uses microscopic organisms to remove the fine organics and nitrogen and phosphorus. There are solids generated by this process which are also decomposed with the Primary Solids. The Secondary Treatment process takes up to 8

hours to complete.

The reclaimed water is then chlorinated for 1 hour to kill the pathogenic or disease-causing organisms and then the chlorine is removed before it flows to the Portneuf River.

The Digestion process takes up to 30 days before the solids, or Biosolids as we call them, are safe to apply to city owned land adjacent to the Pocatello Regional Airport. The Biosolids are used as a fertilizer. We recently purchased additional land for the Biosolids recycling program in the last several months. This purchase will enable us to meet the future growth of the city.

The city's wastewater treatment plant will be facing some additional upgrades in the next five years, as we are being required by the Idaho Department of Environmental Quality and EPA to remove more phosphorus from the water we discharge to the Portneuf River. We also plan to rehabilitate equipment and processes at the plant and in the sewer collection system as needed in the future.

If you have any questions, please check out our Web site at <http://www.pocatello.us/wpc/index.htm>. You can also reach us at (208) 234-6254.

*Jon Herrick is superintendent of Pocatello's Water Pollution Control Department.*

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