

Greensburg's downtown boasts new streets and sidewalks, and most importantly new businesses.



“Going Green” in Greensburg

Photo courtesy of Stacy Barnes, Big Well Manager, City of Greensburg

In July 2011, I was in the Greensburg area to discuss questions by the operator about the reduced flow to the waste stabilization ponds and how that might affect the treatment of the waste. As you recall, the city of Greensburg was devastated by an F5 tornado in May 2007.

The reduced usage should not affect the treatment of the waste but could affect how the city will need to operate the system. This may include not irrigating nearby crop ground. Their permit does include, in part, that they irrigate down to below three feet in depth in both cells by December 1 of each year. The city is also required to monitor the irrigated effluent and water level in the final cell twice annually.

The wastewater stabilization pond system is designed for population equivalent of 2,223. This is a 2-cell system with 24.6 total acres when operated at a depth of eight feet with total capacity of 59.5 million gallons. The population in 2000 census was 1,574 and in 2010 the population was

777. This is a significant decrease in population in excess of 50 percent. Water usage in January 2007 was just over seven million gallons or 143 gallons per person per day. In January 2011 the usage was almost four million gallons for usage of about 163 gallons per person per day. The usage does not reflect usage from industry and commercial usage, but only average usage for the entire system.

As you can see in the photo (opposite page), there is significantly reduced flow to the treatment ponds. I estimate the level difference is at least four feet lower than the upper level. In Kiowa County the normal net

evaporation is 38 inches annually. The extreme drought conditions over the past year likely contributed to significantly more evaporation than normal.

Due to the destruction of buildings, the city opted to use cured in place pipe (CIPP) to make sure that the sewer services no longer in use would not allow storm water to enter the system. They used CIPP in 95 percent of the entire system at a cost of \$1.3 million. The other five percent was in areas not damaged by the tornado. I believe the cost of excavating and capping the service lines in the entire system would cost significantly more than this and taken much longer than it did to install the CIPP. Utilizing CIPP also reduced need to repair streets and alleys and go back and repair those if they settled and made pot holes.

The city also used reclaimed brick from the old power plant in the construction of the new city hall. Low volume toilets were installed in all city buildings; these use less than 1.6

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The newer designs for low volume toilet tanks allow the user to select the amount of water that is flushed. The selection can be for liquids or solids.



Waterless urinals were installed in all city buildings in Greensburg.

gallons per flush. The urinals are waterless urinals. I am sure many readers have used or seen those low flow toilets in the past. The older ones did not remove solids with just one flush; it required two or more flushes that resulted in questionable reduction of water use. Newer designs have reduced and almost eliminated the need to flush more than once. Some of the newer low flow toilets have two buttons: one for low usage such as flushing liquids the other button uses

more water for removal of solids. The new waterless urinals use either a cartridge or special fluid in the design. I am sure few readers are familiar with this technology. People ask about odors. The waterless urinals that I have seen, amazingly, do not have odor issues if given proper maintenance such as changing the cartridge or adding the special fluid as recommended by the manufacturer. The cost for the initial or retrofit of these units has an estimated payback time of six months to three years depending on water and sewer costs and usage. My only concern with these types of facilities is what happens in the collection system designed 25 or more years ago for more water usage. When significantly less water is used, will it cause the solids to separate and cause blockages? Time will be the only way to know for sure how the reduced flow will affect older collection systems. For more information please

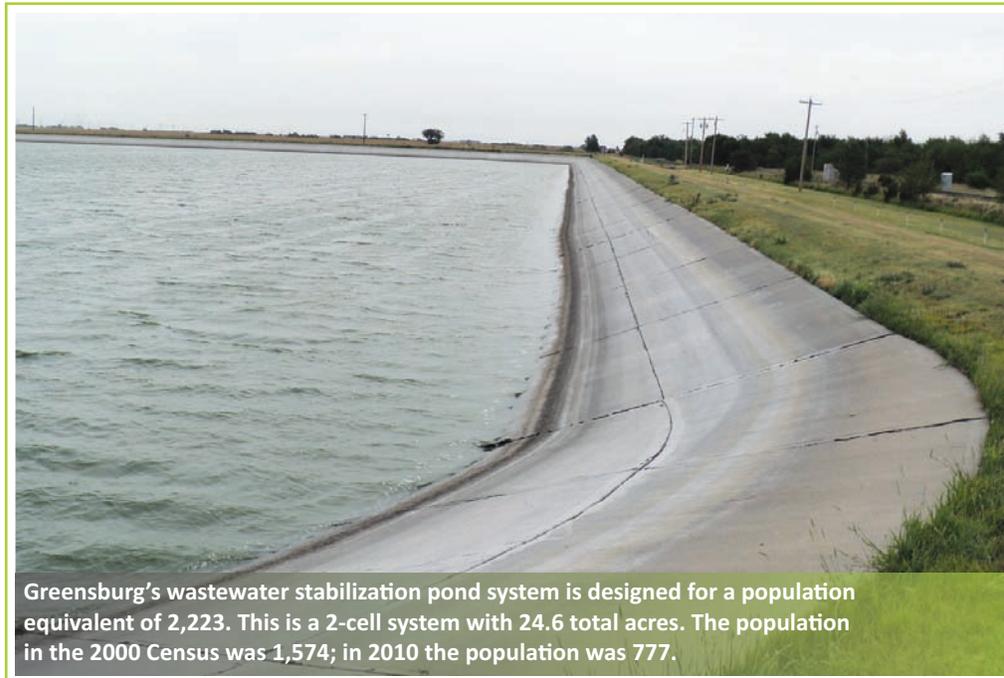
look at this Web site from the U.S. Army Corps of Engineers http://www.cecercer.army.mil/techreports/ERDC-CERL_TN-06-03/ERDC-CERL_TN-06-03.pdf.

The low flush toilets are installed at city hall and the waterless urinals pictured are at the public works offices.

Greensburg's Main Street Streetscape project has been honored by The American Society of Landscape Architects. The four-block stretch was remade with the dual goals of being walkable and capable of handling large storms. With 27 infiltration basins, rain gardens, and 8 underground stormwater cisterns, downtown Greensburg is now able to collect and recycle stormwater. The street was also significantly narrowed to create a more pleasant walking experience.

Congratulations to Greensburg for being innovative in water conservation and "going green".

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