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Greener and cleaner: MWRD aims for better service and lower costs

By Tim Hadac

When people in the Chicago area flush their toilets and don't worry or even think about what happens next, Brett Garelli and Joe Cummings take it as a compliment.

Both are veteran leaders at the Metropolitan Water Reclamation District of Greater Chicago's filtration plant at Stickney, an international marvel when it was built in 1939 and still considered by most measures the world's largest conventional wastewater treatment—drawing visitors every year from around the world to study MWRD methods.

Like many MWRD employees, the two men have made careers out of wastewater treatment.

Garelli, the plant manager, has worked for the district for 29 years; Cummings, the assistant operations manager, for 17.

"When you flush your toilet, for example, that goes into your local sewer system, which then connects to a district interceptor system, which in turn connect to this plant—and this is the largest of seven plants owned by the district," Cummings explained on a recent tour of the plant, located at Pershing Road and Austin Avenue.

"The wastewater is put through a series of physical and biological processes," he continued. "It is

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MWRD Board of Commissioners President Mariyana T. Spyropoulos stands in front of six mammoth pumps—originally built and installed in 1939—with Brett Garelli (center) and Joe Cummings. Group tours are available at the plant. For more information, visit mwrd.org and click on the "Tour Information" icon. – *Archer Journal News photo by Tim Hadac*

MWRD

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screened (put through huge strainers to remove the largest chunks of debris), and then the sewage is pumped up high, so that throughout the rest of the treatment process, everything flows downward with the help of gravity."

The sewage is then fed into then aerated grit tanks, where rocks, pebbles and other things settle at the bottom and are removed to a landfill.

Next the sewage goes into a primary tank, where biosolids settle to bottom and then are further processed. Fats oils and greases are skimmed off the top and go into a landfill.

After those initial physical filtration steps, the biological process begins. Bacteria are added to basically eat much of the remaining sludge, and what remains is fed to final tanks, where remaining organic matter settles to the bottom. From there, centrifuges and other devices are used to spin matter into bio-solids cake that is used as fertilizer.

Throughout, the idea is to purify the water as much as possible.

While the remaining water (or effluent) is not even close to being drinkable, it is sufficiently safe to release back into local waterways, where nature continues the filtration process.

MWRD Board of Commissioners President Mariyana T. Spyropoulos, first appointed to fill a vacancy by then-Gov. Pat Quinn and then elected by voters in 2010, said she enjoys her leadership role at an agency with such an important mission.

"We're doing good work every day," she said. "What's more, we're moving in an environmentally sound direction with more sustainability."

She noted that the district is always looking for new revenue streams, such as selling its biosolids on the open market, establishing a partnership with a private company that is removing phosphorous from wastewater, and even possibly selling its effluent to agencies that can use non-drinkable water.

"You don't need potable water to water a golf course," she said, citing just one example of creative thinking designed to deliver better public service at a lower cost to taxpayers.

Most visitors are impressed with the process, MWRD officials say, but all are wowed by the volume the Stickney plant handles.

"On an average day, we treat about 600 million gallons of wastewater, up to 1.4 billion gallons on peak days," Cummings noted.

The district serves an area of 883 square miles, which includes the Chicago and 125 suburbs. It serves more than five million people, and the district's 554 miles of intercepting sewers and force mains range in size from 12 inches to 27 feet in diameter. They are fed by approximately 10,000 local sewer system connections.

There are at least a few multi-generational stories at the Stickney plant, and Garelli's is one.

"My dad worked at this plant," said Garelli, who grew up in Lombard. "He had some great stories, like how they burned coal here and generated their own electricity.

"I'll say this," he added. "It's great to work here. It's a good place, a good work culture here. There aren't many places left like this."

He said he'd like his children to pursue careers in science, as he did, and work at the MWRD.

Cummings' son is not yet at that crossroads.

"He's just six years old," Cummings smiled "If you ask him what happens to the water when you wash your hands or flush your toilet, he'll say, 'It goes to Poppy's work.' He's too young to know exactly what I do here, but at home he sees me sweeping leaves off the sewer grate in the street. I think he thinks that's what I do all day at work," he added with a chuckle.