

Waukesha Water Utility Recognizes MetalTek International, Inc. For Saving Millions of Gallons of Water

By: Mary Adelmeyer
Waukesha Water Utility

Over the years, **Waukesha Water Utility** (WWU) has developed many successful conservation programs targeted at the residential customer: a City Ordinance that Restricts Sprinkling, a Toilet Rebate Program, and activities for Fix a Leak Week, etc. However, reaching industrial customers has sometimes presented a challenge.

“Most of our industrial customers have survived these tough economic times by being unique, by supplying a product that is different from the plant down the street,” said **Donna Scholl**, who oversees WWU’s conservation program. “That’s why a ‘one size fits all’ program really doesn’t work for them. On the other hand, working with one customer at a time is not always cost-effective. But we also knew the profit motive should be a strong incentive for industrial customers to save water.”

However, a recent experience with a large industrial user helped solidify Waukesha’s approach. Scholl remarked, “MetalTek demonstrated that the profit motive does work; and that significant benefits occurred when they continuously improved both the accuracy and timeliness of their information.”

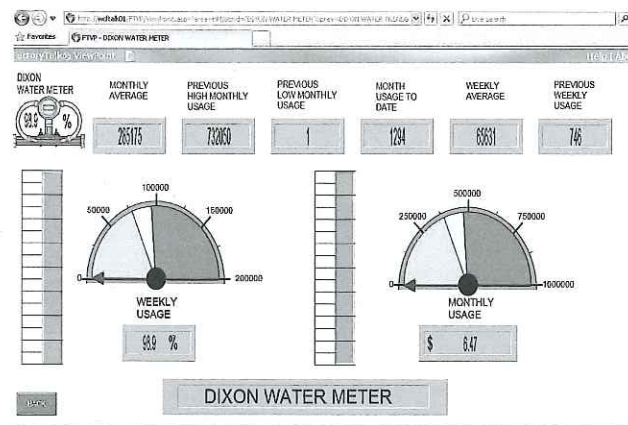
MetalTek International, the Wisconsin Centrifugal Division, is one of Waukesha Water Utility’s top twenty water users, but it has recently saved millions of gallons of water. MetalTek operates stainless steel, bronze, and vacuum foundries. These foundries make centrifugal castings, fabricated petrochemical furnace piping, engineered cylinders and products for turbine engines and many other industrial markets. In order to make their products, the foundries melt 3 million pounds of metal per month; and the more metal they melt, the more water they use.

MetalTek International has always used water wisely. They use closed loop cooling systems to circulate cool water through their furnaces. The resulting hot water is pumped to a reservoir and then up to the cooling towers. This cooling system uses evaporative cooling and the cool water gets returned to the cold water reservoir so that it can be recirculated. Only water that is lost to evaporation is replaced with city water.

MetalTek also has a closed loop system for its process water. Process water is the dirty water that is left over from the production of centrifugal castings. After the water runs through the drains, it gets pumped back to tanks where solids are removed. Once again, the water that is lost to evaporation is replaced with city water.

In 2009, however, WWU made a change at MetalTek that motivated the company to use water even more wisely. In response to economic and regulatory pressures, WWU decided to change out MetalTek’s two 6 inch turbine meters with two 6 inch compound meters. “In addition to providing safe water, we try to get every dollar out of every gallon we pump,” said **Jeff Detro**, WWU Manager of Operations. It makes economic sense and it helps us focus on conservation because we report unaccounted for water to the Public Service Commission.

Compound meters are ideal for industrial and large commercial applications where there are fluctuating flows – medium to high water usage, but at times, also low water usage. “Any flow less than 20 gallons per minute (gpm) does not register accurately on the turbine meters; where compound meters are able to capture flow up to ¾ gpm and are better than 95% accurate,” Detro said.



MetalTek’s Energy Committee, which consists of the company’s president and the department managers, noticed a spike in their metered water usage. Even though production levels were dramatically increasing, water consumption was increasing at an even greater rate. MetalTek spent several months with plumbers investigating ways to reduce their consumption.

The major problem they found was that some internal parts on their softeners/filters had failed. Also, the valves controlling the flushing cycle mode would stick open occasionally. Paul Esenther, MetalTek’s Plant Project Engineer, explained that these kinds of leaks can happen several times a year due to the foundry environment, “With the high temperatures in the hot foundries, water system parts dry out, crack, and leak internally; and with over 30 buildings, finding leaks can be very difficult.” Once these problems were fixed, they thought they had solved the problem.

But with the receipt of their next monthly water bill, they knew that there were more issues. Next they found a bypass valve that had been turned on by an operator; and a pipe on a toilet in a remote building that had failed. Esenther stated, “A small pipe size leak, running continuously, can be so dramatic over a month.” After these problems were solved, MetalTek’s consumption went back into the normal range.

In 2011, MetalTek’s water usage spiked again. Esenther said the issue wasn’t just finding the problems, it was also finding out about them quickly. Paul said, “There can be a six week delay from the start of a problem to seeing it on our water bill.”

MetalTek wanted to see the problems in real time. They contacted Detro at WWU to inquire about using a similar wireless signal that WWU uses to get their meter readings. Jeff said that no one had ever approached him about this before and suggested that MetalTek call T.J. Rodebaugh from Ferguson Waterworks.

Rodebaugh suggested a TRICON/E3 transmitter, which costs \$700 each. “It helps companies track their flow to immediately determine if they have leaks. The device is like a plastic donut that is placed between the register display and the brass part of the meter. It has a pulse output or a 4-20mA analog signal which provides instantaneous consumption and flow information,” Rodebaugh said.

MetalTek installed the TRICON/E3 transmitters on their main meters, and the pulse output sends information to their Rockwell Supervisory Control and Data Acquisition (SCADA) system. This allows MetalTek to see immediately what is being recorded on the meter. The SCADA system has been set up to display real time and historical data, and to trigger alarms and email notifications at set points.

The success that MetalTek has had with saving water has inspired them to do even more. Maintenance crews are reading sub-meters every few days to generate more information to help them save water; and they plan to add more sub-meters to their system. Esenther said, “Buying new meters affects our budget, but with all the water and money saved, we can pay for them.”

Esenther explained MetalTek’s philosophy going forward, saying, “Our goal is to avoid wasting water. System leaks and operator mistakes will happen over time, but the key is to realize the problem quickly, find the problem, and fix it as soon as possible.”

WWU agrees with their goal and applauds MetalTek’s conservation success. After studying MetalTek’s approach to its consumption, the Utility was able to improve its approach to industrial conservation. Scholl summarized, “The profit motive works when the customer has timely, accurate information. Our role will be to help to provide that information, to act as a resource on water technology, and to congratulate our industrial customers as they help us to safeguard our environmental assets.”

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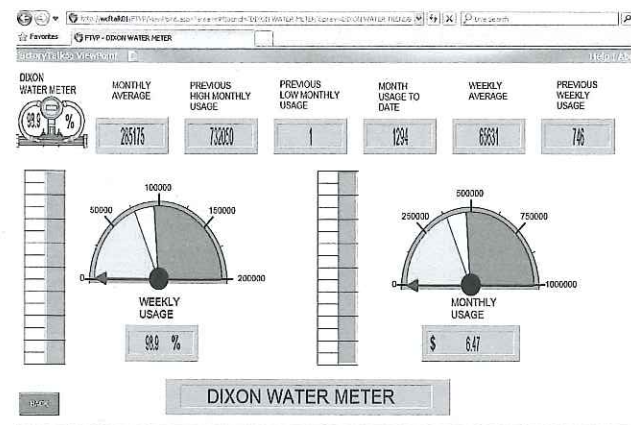
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