Large Meters Make a Big Difference

By Rick Straley

When the city of Sunnyside, Wash., needed to raise water utility rates by 6%, officials expected that the increase would result in more revenue from the 1 billion gal it pumped each year. In the 12 months following the rate increase, however, revenue went down by $120,000.

Washington state utility installs new meters for its top 10 customers

ARTICLE SUMMARY

Challenge: A drop in customer billing caused the Sunnyside utility to lose 16 months of revenue, which totalled $120,000.

Solution: The city replaced 6-in. water meters with large commercial meters, which measure both extreme low and high flows from a single measuring chamber.

Conclusion: The utility increased revenue and reduced unaccounted water loss from 10% to less than 2%.

In an effort to find the cause, utility management re-examined its customer base of 3,500, which included 1,000 commercial businesses. What the team discovered was that the large meters used by commercial customers accounted for 70% of total revenue. Further, the utility looked at the billing history of its top 10 water users and saw that the charges to their number one end-user (a consumer products factory) decreased from $7,000 to $1,600 a month. This was due to performance problems on that 6-in. water meter.

"The drop in that customer's billing caused us to lose out on 16 months of revenue, and almost to the penny, that lost revenue accounted for the $120,000 shortfall that we were experiencing," said Jim Bridges, director of public works for the city of Sunnyside.

Untangling the Problem

One of the problems Sunnyside officials found was that their financial software did not have the ability to issue an alert when meter readings plummeted. After the first month of the reduced measurement, the following months were consistently low, which kept the problem under the radar.

In addition, Bridges acknowledged that operations' main focus was on residential customers because they are typically the ones who call with issues. "Commercial customers usually don't call," he said. "They are worried about getting their product out, so there was no reason for us to go out and look at a commercial meter."

A long-time Sensus customer, Sunnyside officials called the large meter experts and asked them to address the issue with their largest commercial meter. Sensus staff reviewed the situation and suggested three areas for improvement:

1. Repair the existing meter;
2. Order a new OMNI meter to replace the old meter; and
3. Educate Bridges and his staff on the importance of an aggressive large meter testing program.

Testing the Technology

The utility immediately launched a citywide testing program and changed out all of its top 10 large meters to Sensus OMNI models.

"We benefit from the reliability and service we get as a Sensus customer. If we have a problem, Sensus is right there to help us," Bridges said. "We appreciate that they don't just fix the issue and move on, but they take time to educate us about strategies to make our operations more efficient."

The meters have become an asset for Sunnyside. They have just one moving part and are made of epoxy-coated iron instead of brass, making them lighter, easier to maintain and install and more cost-efficient than other large meters. OMNI C2 meters also feature a single chamber—versus the double chamber found in other products—allowing it to measure both extreme low and high flows from a single measuring chamber.

In addition, the meters have built-in features to streamline testing, setting them apart from other large meters. Jack Jackson, technical product manager of large water meter technology at Sensus, said the meter was designed specifically to ease the accuracy testing procedure. Every unit comes standard with a built-in test port and test display mode. When conducting tests, utility personnel can quickly tap into the test plug with their testing equipment and use the reset-table totalizer.

"Because we firmly believe in the importance of testing large meters, we designed the OMNI so that testing can become a core component of a utility's meter maintenance program," Jackson said. "The resettable totalizer allows them to reset the unit to 'zero,' which makes the math of finding the percentage of accuracy easier and makes the testing process user friendly."

The resettable totalizer allows utilty staff to match the registers of the test meter with the new meter. "The [new] meters use a special, high-resolution totalizer. Where a standard meter would get 1-gal increments on the dial, the OMNI test display mode can measure down to hundredths of a gallon," Bridges said, adding that testing features also made the unit an attractive choice.

Other benefits that led to the full meter changeout of its top 10 customers include the extended high and low flow sensitivity range and the data logging feature. The data log allows Sunnyside to download the hourly maximum and minimum flow rate details, in addition to overall consumption for up to 31 days.

"[The] meters capture information that allow utilities to make better decisions regarding operational and customer concerns." Jackson said. "In the past, we didn't treat our commercial meters any differently than residential meters, but since we embarked on an aggressive schedule to test all of our large meters once a year, not only has our revenue increased, but we have reduced unaccounted for water from 10% prior to our testing program to just 1% or 2%," Bridges said.

By changing out its top 10 largest commercial meters, the city has seen a revenue increase and has reduced unaccounted for water from 10% to less than 2%.

Enjoying the Benefits

In addition to resolving the revenue issue, the city of Sunnyside needed to comply with the Washington state Municipal Water Law, designed to protect water resources. According to the *Water Use Efficiency Guidebook*, the law demands that "municipal water suppliers must use water more efficiently in exchange for water rights certainty and flexibility to help them meet future demand." To enforce the law, the state's Department of Health created the Water Use Efficiency program, "intended to achieve a consistently high level of stewardship among all municipal water suppliers."

Bridges said keeping large meters running efficiently keeps Sunnyside—a city that consists of mostly vineyards and farming communities—in compliance with the legislation. Compliance is important because failure to follow the law impacts system operations and may require costly repairs.

"Thanks to our testing program, we were already in compliance when these laws took effect," Bridges said.

"An important part of a water utility's operations should be a systematic testing and maintenance program for its larger meters," Jackson said. "Without testing, a utility is simply guessing on the accuracy of its large meter. The secret to a quality large meter testing program is preventing issues before they occur. This means that it is important to keep detailed test records in order to provide for tracking a meter's accuracy and performance over time."

Sunnyside's budget for its large meter testing program is $7,000 per year. Utility analysts project that the now-efficient large meters will help Sunnyside gain $100,000 per year in additional revenue.

"My advice to others in this same situation is to get on top of it," Bridges concluded. "When you are talking about shrinking dollars in customers pockets, which means shrinking revenue for your city, it's imperative you understand your meter system and the maintenance requirements."

Even a few percentage points of inaccurate measurement on a large meter can cost a utility thousands of dollars per month.

By working in partnership with Sensus and adopting a proactive role in testing its new large meters, the city of Sunnyside was able to improve water usage and reduce this year's rate increase from 6% to 4%. WWD

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