

Water Loss Auditing Evolved



By Michael Meyer

Software aids in reporting of accurate water loss data

Above: View of drying Lake Travis, a reservoir on the Colorado River in central Texas

Water loss is a problem that bedevils utilities. No water system is completely leak-free, of course, but it is impossible for a utility to know the degree to which its system is compromised without a thorough accounting of its resources and their use. To that end, the majority of states and some regional agencies now require at least some of their utilities to conduct periodic water loss audits and report their results. Several of these governing bodies have chosen to require the use of the Free Water Audit Software developed by the American Water Works Assn. (AWWA) Water Loss Control Committee to collect and report these data. Though relatively simple in form and function, this software—and other programs like it—could represent an important step toward reducing water loss and improving infrastructure across the U.S.

Industry Standard

According to the Natural Resources Defense Council (NRDC), 26 of the 50 states and a number of regional water agencies require their utilities to participate in some sort of water loss reporting, although the majority of those bodies require only rudimentary measures. Additionally, several other state legislatures have introduced water-auditing measures that are working their way through the ratification process. Given the expanding adoption of these requirements, the standardization of reporting methodology and means is a key to obtaining reliable information.

This is why several states and commissions require the use of the AWWA Water Loss Control Committee Free Water Audit Software. Originally released in 2006, the Free Water Audit Software is a Microsoft Excel-based program that helps users determine the validity of their data and provides loss-control planning advice, in addition to its reporting functions. Its current build, Version 5.0, was released in 2014 and can be downloaded from the AWWA's website (<http://www.awwa.org/resources-tools/water-knowledge/water-loss-control.aspx>). As its name suggests, it is available free of charge.

The AWWA also offers a companion program, the AWWA Water Audit Compiler, which helps agencies assemble the data received from multiple utilities and over multiple years. It includes analytical functions that can help users discover trends, as well as graphic output capabilities that can present the collected information in aesthetically compelling ways. The Water Audit Compiler was originally released in 2011, and its current build, Version 5.0, was released in 2014. Like the Free Water Audit Software, it can be downloaded for free from the AWWA's website.

'A Living Thing'

The Delaware River Basin Commission (DRBC) is one of the prominent interstate agencies that use the AWWA software. The DRBC works to protect the 330-mile Delaware River watershed, which includes parts of New York, New Jersey, Pennsylvania and Delaware. In the mid-2000s, the agency determined that it needed to establish a way to obtain water loss information that was more accurate than the then-accepted bulk indicator of "unaccounted-for" water, which could include factors such as accounting losses, billing errors and unmetered water supplied to public works departments.

"As a water resources agency, we're interested in the actual losses over the paper losses or the other parts of the 'unaccounted-for' equation, because we want to conserve water resources," said Ken Najjar, director, water resource management for the DRBC.

In the interest of obtaining more useful water loss information, the agency passed a measure in 2009 that required the approximately 300 watershed utilities larger than 100,000 gpd to submit annual audits using the AWWA Free Water Audit Software. The regulation took effect in 2012.

"We chose [the Free Water Audit Software] because it's state-of-the-art," said Najjar. "And it's kind of a living thing—it continues to evolve. I don't think there's a real off-the-shelf comparison you can make between buying bits and pieces of software—I don't think that they exist in that capacity in this business."

Najjar says that the DRBC has seen an approximately 90% rate of participation for the program, and that the information gathered from it is helping the agency plan its future projects.

"I've always seen this process as a win/win for the utilities," he said. "They save and conserve water, which helps the basin, and they also save money, because they're typically finding issues with their own infrastructure. So there's generally not been a lot of resistance to this, and most have found it to be helpful."

Lone Star

When it comes to water loss auditing, Texas has consistently been ahead of the curve. This stands to reason—large areas of the state are often plagued by drought conditions, so the consequences of water loss in the Lone Star State can be profound. Therefore, it is no surprise that Texas was the first state to adopt legislation that required most of its municipal water suppliers to submit water loss reports.

"We had legislation passed in 2003 that initially required all retail public water suppliers in the state to submit a water loss audit once every five years," said John Sutton, team lead, municipal water conservation for the Texas Water Development Board (TWDB). "The first one was to be for the year 2005, due May 1, 2006."

At the time, there was no widely available software that would assist water suppliers with the collection and reporting process, as the AWWA was still developing its program. So the TWDB created its own software while consulting with the AWWA and using the International Water Assn./AWWA Water Loss Methodology as a guide.

"We were just a little ahead in terms of when we needed something," Sutton said. "Not that they were holding anything back, but they were still in the development phase. But we needed something sooner than their finished product, so we based our methodology and our terminology on a lot of things that they had in place or were going to have in place. Since that time we've continued to work closely with them. We've actually revised our form and our format a little bit to come in as much in line as possible with what they have."

Thanks to the fact that its water loss audit software was developed in-house, the TWDB has been able to integrate it with some of its other proprietary software—notably its water use survey form, which every entity that receives financial assistance from the TWDB must complete annually—in order to acquire more consistent information and provide its users greater convenience.

"I think we're getting a little bit better data, because very often one person was in charge of the water use survey and someone else might have been in charge of the water loss audit, and sometimes that data wasn't the same," Sutton said. "And so now, people call us and say, 'Where did this information come from?' Well, it came from your water use survey. 'Well, let me go talk to those folks. I think they made some miscalculations.' And so they'll make changes. So we're getting consistent data, which I think is probably more valid data as well. And hopefully it's easier for our users, too."

Texas continues to expand its water loss auditing requirements, and the amount of information

the TWDB is collecting via its software is helping the state develop its water projects.

"We provide [the data] to the regional water planning groups for their consideration in identifying potential water management strategies in the planning process to meet future demands," Sutton said. "We also provide it to our finance and regional teams, and they use it very often in marketing and outreach. We have monies and programs available that can very often address leak detection, distribution line repair and metering, and so very often there's an opportunity there to talk to some people. 'It seems like you have a problem. We may have some resources to be able to assist you.'"

Baby Steps

The AWWA software and others like it have made conducting and reporting water loss audits far easier than in the past. However, these programs are still in their infancy, so their successes are measured in ways that are not glamorous, but still are tangible.

"In the short term, we're really looking for accuracy of reporting," Najjar said. "That would speak to the validation being accurately done. I think what we're finding is folks are doing a better job of measuring and reporting rather than reducing the losses. They're reducing the losses because the losses weren't real to begin with. If you can't

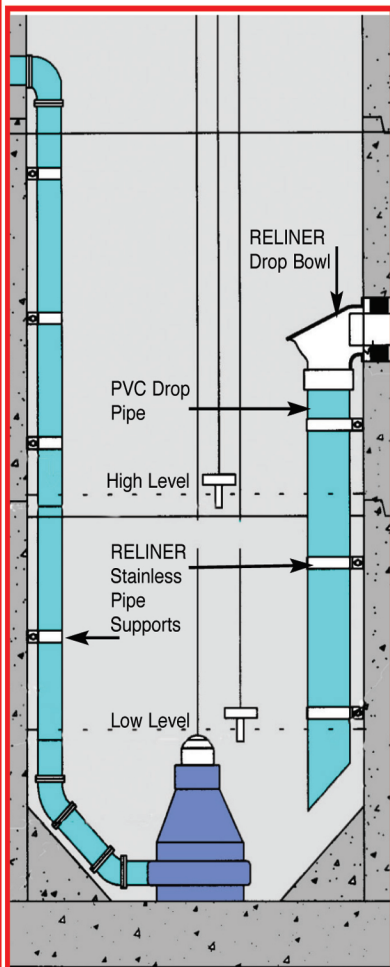
measure it right, you can't reduce it. Now, in terms of actual reductions, if those losses are in infrastructure, that might take longer to improve, just because of the capital expense involved with that."

In the interest of familiarizing utilities with the benefits of the auditing process and the Free Water Audit Software, the AWWA has challenged 1,000 utilities to conduct and report audits using the Free Water Audit Software. To learn more, visit <http://www.awwa.org/resources-tools/water-knowledge/water-loss-control.aspx>. **w&wd**

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