Spotlight on Water Safety

By Elisabeth Lisican

Industry experts share ideas for staving off another Flint

When news of the Flint water crisis broke—in terms of national news; the crisis was actually nothing new—the water industry found itself in an unfamiliar position: the national spotlight. Political parties blamed one another for Flint's—and Michigan's—problems; presidential candidates debated the crisis.

The series of events leading up to Flint may still not be fully understood, and yet the timeline is known so well by now, it needs no retelling. So poignant it needs no embellishment.

But as the headlines start to fade from the national stage, the fact remains that there are about 6.1 million lead service lines nationwide. If the average cost of replacing each one is $5,000, then the collective cost could easily top $30 billion, according to the American Water Works Assn. This is in addition to $1 trillion needed over 25 years to repair and expand buried drinking water main.

Experts say a Flint-like crisis happening again elsewhere in the U.S. is within the realm of possibility.

"While it is unlikely, a lead-oriented water crisis could occur in other U.S. communities," said Michael Deane, executive director of the National Association of Water Companies. "Water systems are complicated and situations like the one in Flint underscore the extreme importance of highly trained, certified professionals and experts.

"The public should understand that while situations like Flint are very uncommon, they can happen in other communities. It's important to remind everyone that access to safe water is always the top priority of both public and private water utilities."

What's more, most systems are over-engineered to take all kinds of problems into account, pointed out David Zetland, assistant professor of economics at Leiden University College The Hague.

"They talk about the pipes having a 100-year lifespan," he said. "And plenty of pipes in the U.S. are running at over 100 years, still working. They say the same thing about jetliners that could lose the whole engine or both engines—or three out of four engines—and still fly. There's a bunch of redundancy built into most engineered systems."

The problem, then, lies in the natural tendency of people to feel that, after a while, they can stop doing the maintenance steps "because the system doesn't fail if we don't do the maintenance steps," Zetland said. "There are probably another five or 10 Flints out there right now that no one has caught on to."

Lessons Learned?

Peter Binney, vice president of sustainable infrastructure for engineering consultant Merrick & Co., saw the Flint crisis as "another piece of the jigsaw puzzle" for the water industry that things are not right.

"Whether it's the water quality issues or the operational issues and decisions that were made there, or whether it's drought, I have to say, we don't learn as much from these lessons as I would like," he said.

Binney certainly knows water crises. As the former director of Aurora Water (he resigned from his post in 2008), Binney was there during a time of terrible drought in Colorado.

"The situation I went through in Aurora had some of the same things. … Ours was … foregone investment from a quantity standpoint," he said. "I think the question now is, what have we learned and what are we going to do about it? Flint is another example of, when are we going to understand what it is that we're working with, and run it more as an enterprise, perhaps?"

What Now?

Clean, safe drinking water depends on complex treatment and distribution systems that require constant attention and sustained investment, Deane said.

"The issue in Flint was operational," he said. "The failures were related to treatment, not the water system infrastructure. Flint has brought attention to the fact that the water treatment process is very complicated."

Water treatment protocols vary according to many factors, including the source and chemistry of the water and the makeup of the distribution system, and the operation of water utilities is just as important as the investments being made in the system's infrastructure.

The primary indicators of a strong and sound water system, Deane said, are:

- The utility is making an investment in its personnel by hiring water professionals who are committed to ensuring the system is run well.
- The necessary investments are being made for infrastructure replacement and repair.

"The matter in Flint should serve as an early warning sign for many utilities across the nation to assess their water systems accordingly," Deane said.

Performance Insurance

Zetland believes water utilities need to improve their performance in ways that are transparent and obvious to customers. Therefore, he has developed a model he calls "performance insurance"—rewarding managers for better service.

"My idea for performance insurance is to call attention to the ongoing risk of water systems," he said. "Whether or not they're investor owned or municipal, [water systems] are certainly regulated, and they're monopolies, and it's quite common that a failure is going to be addressed by emergency bailout, emergency funds … My idea is that if there was this insurance policy, like an insurance policy for driving, or for flood insurance … The insurance price would reflect the risk."

In a nutshell, if you are doing a better job of managing risk—just like you are doing a better job of driving and not having an accident, and you take a driver's safety course, or, likewise, a pipeline inspection course—"there are all kinds of parallels," Zetland said.

Right now, it seems there is no indicator of risk. And Zetland thinks that is problematic.

"If it's a well-run system, is the water cheap because of good management, or because of a lack of maintenance?" Zetland said. "And lots of water utilities are bragging about how cheap their water is. And I would be very concerned if that was because I'm about to suffer from lead poisoning."

Zetland also believes U.S. utilities should have benchmarking: comparing one another's performance.

"What that says is, if you're doing well compared to your peers, you should get some kind of recognition or reward; and if you're doing poorly, you should somehow be brought to account." W&WD

Elisabeth Lisican is editor-in-chief of W&WD. Lisican can be reached at elisican@sgcmail.com or 847.391.1012.