

## Where were you?

**M**any of us remember where we were when we first learned about a major disaster. I heard President Kennedy was shot while waiting in line outside my third-grade classroom. Chernobyl and the Challenger explosion made the TV news in a rented house, and Deepwater Horizon was announced on my radio headphones while I was painting a porch. Many of you were with me on Sept. 11, 2001 at the ISA Show in Houston.

I wonder where the water treatment and quality experts were in April 2014, when Flint, Michigan's municipal supply was switched from Lake Huron to the Flint River?

Flint River water is 19 times as corrosive as Lake Huron, with higher levels of salts and bacteria. But unlike the water from Detroit, anti-corrosion agents were not added to the river water, allowing lead to leach from pipes and fixtures. High levels of chlorine were used to treat the river water, creating carcinogenic trihalomethanes. To keep trihalomethanes down, the city added ferric chloride, which can accelerate corrosion of lead and iron pipes.

Somebody should have known better. A 2011 study on the Flint River found it would have to be treated with an anti-corrosive agent for it to be considered a safe source of drinking water, and federal regulations require passivation.

In February 2015, as test results came in showing high lead levels in children's blood and tap water, EPA water expert Miguel Del Toro began investigating. He identified water contamination as the problem in April 2015, and wrote a memo to the local ranking EPA official, Susan Hedman. She then quietly fought with the Michigan Dept. of Environmental Quality for at least six months about what should be done. It wasn't until Jan. 5 of this year that a state of emergency for Genesee County was declared, and now National Guard troops are providing bottled water to residents.

Now, Flint is back on Detroit water, but the jury is out on whether lead pipes and fittings will

be repassivated, and if so, how long it will take. Meanwhile, citizens of one of the richest countries in the world, one of the few where perfectly potable water flows in unlimited amounts from kitchen and bath faucets virtually everywhere else, must try to drink and bathe with bottled water or take their chances with point-of-use filters, while they continue to test and monitor their tap water—and their children's blood—for lead poisoning.

It's estimated between 6,000 and 12,000 children have been injured. Some of those children are permanently damaged, and will never reach their potential.

I have to think that someone—maybe someone reading this—heard about the plan and knew the change from treated lake water to river water called for passivation to prevent leaching lead. But this mythical water expert did not stand in the way, raise a red flag, or even write a letter to the newspaper.

So a plan to save a financially strapped city between \$6 million and \$8 million—that would have probably worked if it included passivation at about \$100 per day—has already cost the State of Michigan and the United States around \$30 million. Replacing lead service piping could take 10 years and \$60 million. By the time Flint water is safe to drink, with injury claims, the disaster could end up costing \$400 million or more.

Like the Kennedy assassination, Chernobyl, Challenger, Deepwater Horizon and 9-11, the Flint water disaster has villains and good guys. We haven't identified all the villains, but the good guys include Del Toro, the suffering children and parents, the bottled water haulers and 300 Union plumbers from across the country, who descended on the city to install new faucets and water filters for free.

I'd rather it had been prevented by one of us.

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