

How tap water became toxic in Flint, Michigan

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Toxic water crisis draws federal investigation 04:49

Story highlights

When Michigan officials switched water sources for Flint, it introduced iron and lead into the water supply

A class-action lawsuit alleges lead poisoning and some have called for Michigan Gov. Rick Snyder to resign

(CNN)—Flint, Michigan, lies about 70 miles from the shores of the largest group of fresh water bodies in the world: the Great Lakes. Yet its residents can't get clean water from their taps.

Nearly two years ago, the state decided to save money by switching Flint's water supply from Lake Huron (which they were paying the city of Detroit for), to the Flint River, a notorious tributary that runs through town known to locals for its filth.

"We thought it was a joke," said Rhonda Kelso, a long-time Flint resident. "People my age and older, thought 'They're not going to do that.' "

The switch was made during a financial state of emergency for the ever-struggling industrial town. It was supposed to be temporary while a new state-run supply line to Lake Huron was ready for connection. The project was estimated to take about two years.



A city employee flushes out a hydrant.



Related Video: FEMA aiding in toxic water crisis 03:15



Rhonda Kelso and her daughter

Adding that agent would have cost about \$100 a day, and experts say 90% of the problems with Flint's water would have been avoided.

What's in the water?

Soon after the switch, the water started to look, smell and taste funny. Residents said it often looked dirty.

"The water would come in brown and my daughter was like 'Mom ... why is the water brown?' "

Kelso thought it was sewage, but it was actually iron. The Flint River is highly corrosive: 19 times more so than the Lake Huron supply, [according to researchers from Virginia Tech](#).

According to a [class-action lawsuit](#), the state Department of Environmental Quality wasn't treating the Flint River water with an anti-corrosive agent, in violation of federal law. Therefore, the water was eroding the iron water mains, turning water brown.

But what residents couldn't see was far worse. About half of the service lines to homes in Flint are made of lead and because the water wasn't properly treated, lead began leaching into the water supply, in addition to the iron.

This had been the status quo for nearly two years, and until September, city and state officials told worried residents that everything was fine. Former Flint Mayor Dayne Walling even drank it on local TV to make the point.

But in August, a group of skeptical researchers from Virginia Tech came up and did in-home testing and found elevated levels of lead in the drinking water and made those findings public. State officials insisted their own research was more accurate.

"You're paying for poison. I'm paying for water that's a toxic waste," Kelso said. She and her daughter and four other families are now part of a [class-action lawsuit](#) that alleges not only lead poisoning but several medical conditions resulting from contaminated water after the switch. CNN sought responses from all the defendants, and many did not respond.

Later it became publicly known that federal law had not been followed. A 2011 study on the Flint River found it would have to be treated with an anti-corrosive agent for it to be considered as a safe source for drinking water.



The city is now issuing bottled water to Flint residents.



Dr. Mona Hanna-Attisha



Mayor Karen Weaver

But Flint residents say they were kept in the dark for 18 months until a local doctor took things into her own hands.

The hero doctor

In the pediatric ward of Flint's Hurley Medical Center, Dr. Mona Hanna-Attisha was seeing more and more worried parents fretting over rashes and hair loss.

No one believed state and local officials when they said that this icky brown water was safe.

Hanna-Attisha, an animated and passionate young pediatrician with horn-rimmed glasses who everyone calls Dr. Mona, realized there was a way to determine whether the water was affecting kids. Medicare requires states to keep records of blood lead levels in toddlers. The comparison was astonishing. Lead levels doubled and even tripled in some cases.

"When (my research team and I) saw that it was getting into children and when we knew the consequences, that's when I think we began not to sleep," Hanna-Attisha said.

At first, the state publicly denounced her work, saying she was causing near hysteria. They spent a week attacking her before reversing their narrative and admitting she was right.

"Their information wasn't flawed. They had the data, but they were being told by the DEQ that there wasn't a problem, they just dismissed it," said Hanna-Attisha and confirmed by the state-appointed task force. "There was almost like blinders on," she added. CNN contacted DEQ's former director, Dan Wyant, who made the decision and later resigned over the issue. He did not respond.

Just a few weeks later, in October, the city reverted to using Detroit's Lake Huron water supply, but the damage was done to the lead pipes.

Even with properly treated water flowing in, Virginia Tech researchers still detected lead levels -- albeit lower ones -- in water in Flint homes.

The state is now handing out filters and bottled water.

"You know, I never thought this was something that we would be begging for, crying for ... clean, affordable water," said Flint Mayor Karen Weaver.

Flint's woes began before the water, but it's all related

The past three decades have been rough for Flint. Like many blue-collar Michigan towns, it was fueled by the auto industry. General Motors plants kept it afloat for much of its prosperous history. But in the 1980s and 1990s, those plants began to close their doors, and when the jobs left, so did many of the people.

A steady decline in population has been matched by a steady rise in violent crime. It's consistently ranked among the most dangerous cities in America.

According to local officials, about 40% of residents are below the poverty rate. Fifteen percent of homes are boarded up and abandoned. Weaver says the city of 100,000 doesn't even have a grocery store. And now its residents don't have clean water either.



Related Video: High levels of lead found in Flint water 01:01

In 2011, Flint was declared to be in a financial state of emergency, and the state took budgetary control. Therefore, all the decisions made during the water crisis were at the state level, which state officials confirmed, not by the City Council or the mayor.

"When the governor appointed an emergency financial manager (in 2011), that person came here ... to simply do one thing and one thing only, and that's cut the budget, at any cost," said Michigan Congressman Dan Kildee.

Kildee said the water crisis is indicative of an attitude about industrial towns such as Flint that have seen hard times in the past 30 years. They're often just forgotten, he said.

"This case shows that you can't treat cities the way you treat some corporation that you might just sort of sell

off," Kildee said.

Long-term health consequences

Lead poisoning is irreversible. Pediatricians such as Hanna-Attisha fear the Flint children who tested with elevated levels will suffer lifelong consequences.

"If you were to put something in a population to keep them down for generation and generations to come, it would be lead," Hanna-Attisha said. "It's a well-known, potent neurotoxin. There's tons of evidence on what lead does to a child, and it is one of the most damning things that you can do to a population. It drops your IQ, it affects your behavior, it's been linked to criminality, it has multigenerational impacts. There is no safe level of lead in a child."

There are environmental actions that can help mitigate exposure such as proper nutrition and early childhood education. But that's made more difficult in a city with inadequate resources and without a grocery store.

"We need some money for infrastructure," said Weaver, who took office in November. "We've got to get all of these kids and all of these families the services they deserve because of what's happened."