How tap water became toxic in Flint, Michigan

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**CNN**

**1/13/16**

**(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 *(river or stream that runs into a larger river)* that runs through town known to locals for its filth.

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"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.

1. Why did the state decide to switch Flint’s water supply to the Flint River?

**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](http://flintwaterstudy.org/about-page/about-us/).

According to a [class-action lawsuit](http://i2.cdn.turner.com/cnn/2016/images/01/10/may.et.al.v.snyder.et.al.-.pacer.1.complaint.for.injunctive.and.declaratory.relief.pdf), 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 *(gradually wearing down)* 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.

2) What has been contaminating the water supply in Flint?

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](http://i2.cdn.turner.com/cnn/2016/images/01/10/may.et.al.v.snyder.et.al.-.pacer.1.complaint.for.injunctive.and.declaratory.relief.pdf) 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.

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.

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

1. What could have been added to the Flint water supply to make the water safe?

Flint Water Video:
4) What are some of the negative health effects of lead poisoning?

**Long-term health consequences**

Lead poisoning is irreversible *(cannot be undone)*. Pediatricians such as Hanna-Attisha fear the Flint children who tested with elevated levels will suffer lifelong consequences.

There are environmental actions that can help mitigate *(make less severe of painful)* exposure such as proper nutrition and early childhood education. But that's made more difficult in a city with inadequate *(not sufficient)* 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."

**Who's to blame?**

A state-appointed task force preliminarily found that fault lies with the state DEQ *(department of environmental quality)*, and on December 29, Wyant stepped down.

Last week, three months after high lead levels were detected in Flint children, Michigan Gov. Rick Snyder declared a state of emergency over the issue.

The U.S. Attorney in Michigan and the federal Environmental Protection Agency are also investigating why the state chose to ignore federal law and go without the anti-corrosive agent, [as the lawsuit contends](http://i2.cdn.turner.com/cnn/2016/images/01/10/may.et.al.v.snyder.et.al.-.pacer.1.complaint.for.injunctive.and.declaratory.relief.pdf). "Nobody has answered that question," Weaver said.

Friday evening, about 100 protesters in Flint marched from city hall, calling for Snyder's resignation over the issue.

Everyone CNN interviewed -- residents, the former mayor, the current mayor, Congressman Kildee, city workers -- they all blame the governor's office and the state Department of Environmental Quality for what happened to Flint. Snyder apologized on Thursday during a news conference.

Dayne Walling, the former mayor who so confidently went on TV and drank Flint River water to try to quell *(put an end to)* the early protests, lost his recent re-election bid in a campaign centered around the issue.

"In retrospect, I regret all of it," Walling said this weekend.

"All the way back to seeing the city move to a different drinking water source. You can't put a dollar amount of the devastation to our community, our kids, and it was completely avoidable."

1. Who do you think is to blame for the Flint water crisis? Why?

6) The New York Times Editorial Board states that the “principal cause of the water crisis in Flint, Mich.: the state government’s blatant disregard for the lives and health of poor and black residents of a distressed city”. Do you agree with this statement? Why or why not?