



NEWS

Beyond Flint: Excessive lead levels found in almost 2,000 water systems across all 50 states

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While a harsh national spotlight focuses on the drinking water crisis in Flint, Mich., a USA TODAY NETWORK investigation has identified almost 2,000 additional water systems spanning all 50 states where testing has shown excessive levels of lead contamination over the past four years.

The water systems, which reported lead levels exceeding Environmental Protection Agency standards, collectively supply water to 6 million people. About 350 of those systems provide drinking water to schools or day cares. The USA TODAY NETWORK investigation also found at least 180 of the water systems failed to notify consumers about the high lead levels as federal rules require.

Many of the highest reported lead levels were found at schools and day cares. A water sample at a Maine elementary school was 42 times higher than the EPA limit of 15 parts per billion, while a Pennsylvania preschool was 14 times higher, records show. At an elementary school in Ithaca, N.Y., one sample tested this year at a stunning 5,000 ppb of lead, the EPA's threshold for "hazardous waste."

"This is most definitely a problem that needs emergent care," Melissa Hoffman, a parent in Ithaca, forcefully pleaded with officials at a public hearing packed with upset parents demanding answers.

In all, the USA TODAY NETWORK analysis of EPA enforcement data identified 600 water systems in which tests at some taps showed lead levels topping 40 parts per billion (ppb), which is more than double the EPA's action level limit. While experts caution Flint is an extreme case of pervasive contamination, those lead levels rival the 400-plus of the worst

samples in far more extensive testing of around 15,000 taps across Flint. The 40 ppb mark also stands as a threshold that the EPA once labeled on its website an “imminent” health threat for pregnant women and young children.

Even at small doses, lead poses a health threat, especially for pregnant women and young children. Lead can damage growing brains and cause reduced IQs, attention disorders and other problem behaviors. Infants fed formula made with contaminated tap water face significant risk. Adults are not immune, with evidence linking lead exposure to kidney problems, high blood pressure and increased risks of cardiovascular deaths. The EPA stresses there is no safe level of lead exposure.

Most Americans get their drinking water from a fragmented network of about 155,000 different water systems serving everything from big cities to individual businesses and school buildings. The EPA determines that a system has exceeded the lead standard when more than 10% of samples taken show lead levels above 15 parts per billion. It's called an "action level" because, at that level, water systems are required to take action to reduce contamination. But enforcement, which is implemented state by state, can be inconsistent and spotty. Some 373 systems have failed repeatedly, with tests continuing to find excessive lead in tests months or even years later, the EPA data shows. What's more, the systems have widely varying levels of financial resources and staff training.

Amid cotton fields in Lamesa, Texas, for example, tests last year showed lead contamination more than seven times the EPA limit at Klondike Independent School District, which serves 260 students in a single K-12 building. "Some things just slip by," said the school superintendent Steve McLaren when pressed about skipping a round of testing in 2014. In a tiny school system, McLaren said leaders "wear a lot of hats." At times he's served as principal and bus driver, in addition to being superintendent and in charge of the drinking water system. The school replaced drinking fountains, and plans to replace its entire water system next fall. McLaren said he's concerned about how high lead levels might affect students and understands the need for action. But he said, "Our kids are strapping and healthy, and they've been drinking this water all their lives."

The testing required by the government can include samples from as few as five or 10 taps in a year, or even over multiple years. The system is designed only to give an indication of whether homes or buildings with lead pipes and plumbing may be at higher risk of lead leaching into water. Even the biggest water systems in cities are required to test just 50 to 100 taps.

The limited and inconsistent testing means the full scope of the lead contamination problem could be even more widespread. People in thousands more communities served by water systems that have been deemed in compliance with the EPA's lead rules have no assurance their drinking water is safe from the brain-damaging toxin.

“This is just a case where we have a rule that’s not been adequately protective,” said Lynn Goldman, a former EPA official and dean of George Washington University’s school of public health. “The entire design of the regulation doesn't tell you about your own water.”

Drinking water typically isn’t contaminated with lead when it leaves the treatment plant. It becomes contaminated as it travels through lead service lines on individual properties and lead plumbing fixtures inside homes. At best, the EPA's rules and testing are a sentinel system, alerting officials of the need to treat their water with anti-corrosion chemicals. Doing so reduces, but does not eliminate, the lead in water reaching the tap.

How much lead in water poses an imminent threat?

There are about 75 million homes across the country built before 1980, meaning they’re most likely to contain some lead plumbing. That's more than half of the country’s housing units, according to the Census Bureau. The heaviest concentrations are in New York, Rhode Island, Massachusetts, Connecticut and Pennsylvania.

“You would hope that the cities and the counties and the state and the federal government would be holding people’s feet to the fire when it comes to providing quality water to the consumer if there is an issue,” said Terry Heckman, a board member at the Arizona Water Quality Association, a group that represents water systems. “That’s what the government is supposed to do, is look over the general welfare of the populace.”

Experts say what happened in Flint is an extreme case and helps show how the limited testing required by the EPA provides only a crude indicator of systems where harmful levels of lead may be in water at homes with lead pipes.

The struggling city of about 100,000 people passed the government’s required lead tests. But one resident’s vocal complaints spurred extra tests at her home, revealing shocking levels of lead contamination: 104 to 13,200 ppb. The crisis worsened as independent researchers tested 300 samples across the city, revealing homes with high lead levels that the government-mandated tests missed. More than 10% contained at least 27 ppb of lead. Since then, regulators conducted another 15,000 tests. More than 1,000 samples show lead above the 15 ppb limit, and more than 400 show dangerous levels above 40 ppb.

One unique factor in Flint: the water department changed to a corrosive river water source, then failed to treat it with anti-corrosion chemicals. The result: a pervasive contamination problem as the insides of old lead pipes broke down and released a torrent of poison.

Yet the fundamental risk factor in Flint – old lead service lines that deliver water to homes, plus interior plumbing containing lead – is a common problem for tens of millions of homes mostly built before 1986. Unlike other contaminants that can be filtered out at the water plant, lead usually gets into drinking water at the end of the system, as it comes onto individual properties and into homes.

At greatest risk, experts say, are an estimated 7.3 million homes connected to their utility's water mains by individual lead service lines -- the pipe carrying water from the main under the street onto your property and into your home. The water passes through what amounts to “a pure lead straw,” said Marc Edwards, a Virginia Tech environmental engineering professor who has studied water contamination in Flint and a similar, earlier crisis in Washington, D.C.

Lead service lines were mostly installed before the 1930s, although some communities continued to lay lead pipes for decades longer.

The way tap water becomes contaminated — at or even inside individual homes — poses a vexing problem for regulators, utilities and consumers. A home with a lead service line and older internal plumbing may have high levels of lead in its tap water. But a nearby, newly constructed home may have no lead contamination. The only way to know if your house is at risk is to find out about its water line and plumbing.

“People are legitimately concerned about what they’re hearing in the wake of Flint,” said Lynn Thorp, of the advocacy group Clean Water Action, who recently served on a federal work-group on lead in drinking water. “As long as we have lead in contact with drinking water, we can have exposure at the tap.”

Thorp said consumers need to become educated about any risks at their individual homes.

Under the EPA's Lead and Copper Rule, implemented in 1991, the government's approach for protecting people from lead in drinking water has relied heavily on water systems monitoring for indications that their water has become more corrosive. The more corrosive the water, the more lead will be drawn out of pipes. Treatment of water with anti-corrosion chemicals can only reduce, not eliminate, lead from leaching into tap water in invisible and tasteless doses.

That's why the EPA's National Drinking Water Advisory Council wrote agency leaders in December calling for removing lead service lines "to the greatest degree possible." It's a daunting recommendation since in most cases, the water utility owns part of the line and the rest belongs to the homeowner. A credit ratings firm warned this month that replacing lead service lines could cost tens of billions of dollars.

"We're now dealing with a legacy issue on private property distributed throughout many communities," said Tracy Mehan, the American Water Works Association's executive director of government affairs. The cost to replace each service line can range from hundreds to thousands of dollars.

Meanwhile, the EPA advisory council, whose members include experts from water utilities and state agencies, recommended that EPA take numerous steps to strengthen the existing regulation. They include developing a "household action level" that would trigger public health actions when lead contamination reaches certain levels and ensuring the public receives more information about the risks they face.

In addition, state water regulators say, federal officials need to tell water utilities what level of lead contamination indicates an acute health risk that should trigger a "do not drink" alert to all of the systems' customers. The EPA is evaluating the recommendations and expects to propose revisions to its lead contamination regulations in 2017.

"We really recognize there's a need to strengthen the rule," Joel Beauvais, deputy assistant administrator for EPA's Office of Water, said in an interview.

While he characterized Flint as an outlier, he said, "There's no question we have challenges with lead in drinking water across the country. Millions of lead service lines in thousands of systems."

Changing the rules could take at least a year. Beauvais said the EPA is working now to make sure states fully enforce existing rules. The agency last month sent letters to governors and state regulators calling for greater attention to drinking water oversight. While federal rules are made by the EPA, they're enforced by the states.

Because of Flint, some utilities and state water regulators said they were already taking a closer look at water systems where testing identified excessive lead.

"It has caused a sort of shock wave through the drinking water industry generally," said Jim Taft, executive director of the Association of State Drinking Water Administrators. States are

looking at water systems' performance and oversight, he said, "to make sure we're not missing something."

At a trailer home at the Maple Ridge Mobile Home Park in Corinna, Maine, Christi Woodruff recalls the notice hung on her door last year alerting her to potential lead contamination in the neighborhood.

A mom with an 8-year-old daughter, Woodruff initially planned to get her water tested. But, she shrugged it off after the park's landlord told her testing was unnecessary. "The manager said not to worry because it was only certain trailers ... He didn't think my trailer was one of them," she said.

Property manager Randy Dixon blamed tap water from a single old trailer with lead-soldered copper pipes for causing the park's water to fail the EPA's testing. He then told a USA TODAY NETWORK reporter to stop interviewing residents.

The analysis of EPA's data show the Maine park is among almost 2,000 water systems flagged for having an "action level exceedance" for lead during 2012 through 2015. That generally means more than 10% of tap water samples taken during a testing period showed lead contamination above 15 ppb.

If you're living in a home with a lead service line and received a notice about possible lead contamination, "it's a good idea to get your water tested," said Beauvais, the EPA water office official.

Most of the water systems that failed the EPA's lead standard serve anywhere from a few hundred to several thousand people each, often running their lines to homes in rural communities, or managing water for individual schools or businesses in remote areas.

In Lake Mills, Wisc., about 50 miles west of Milwaukee, EPA records show the utility serving water to 5,300 people failed lead tests in 2013, 2014 and again in 2015 with some readings several times the federal limit.

Paul Hermanson, director of Public Works, said Lake Mills sent fliers with water bills since 2010 urging residents in older homes to run their water 15 to 30 seconds before using it. The idea behind not using the first water out of the tap is to avoid drinking water that's been touching the old pipes and has the greatest risk of containing lead. "I don't know that there's a good solution to it other than running the water," he said.

Some of the older homes in the growing bedroom community of Firestone, Colo., about 30 miles north of Denver, tested for excessive lead four times since 2014, records show. Town officials said they have repeatedly notified their 9,500 water customers of potentially harmful lead levels and distributed information explaining how to reduce risk. “The fact that they haven’t fixed this, that’s annoying,” said resident Heath Gaston.

The USA TODAY NETWORK analysis showed three of every four water systems that exceeded the lead standard from 2012 to 2015 served 500 people or less. They often lack the resources and staff expertise of larger systems. “Some of these small systems don't even have a full-time operator,” said Taft, of the state water regulators association. They may rely on one person, responsible for several systems, he said. In the case of schools, the same staff that does building maintenance may be managing the water system.

But nearly 70 of the systems with excessive lead findings during the past four years each provide water to at least 10,000 people. They include:

Passaic Valley Water Commission, New Jersey: More than 315,000 people are served by the water system in the industrialized area of northern New Jersey with a history of other pollution crises. It failed to meet EPA’s lead standards during two testing periods last year and one in 2012. Commission officials said a \$135 million construction project is underway to improve corrosion control. The utility officials also are publicly encouraging more people to participate in its lead-testing program.

New Bedford, Mass.: This municipal water system, which serves about 95,000 in a seaport city about an hour south of Boston, has been cited for excessive lead in 2014 and early 2015, EPA data show. Ron Labelle, the city’s public infrastructure commissioner, said the area’s housing is among the oldest in the Northeast and some still have lead service lines. A consultant has helped improve the system’s anti-corrosion treatments, he said, and the city passed its most recent testing in December. Additional testing will be done this spring.

Bangor Water District, Maine: More than 28,000 people receive water from this system, which exceeded EPA’s lead standards three times in 2012 and 2013. Operators tweaked chemicals used in its corrosion control program, and have been in compliance since.

When testing does reveal high lead levels, the USA TODAY NETWORK found many people were not warned as required. Of the 180 cited for failing to notify the public, almost half were cited more than once, records show.

In Ohio, in the past year, seven water systems serving a combined 8,800 customers failed to notify residents of potential lead contamination within 60 days as required.

Tests found excessive lead last summer at homes in the village of Sebring. The water system didn't alert customers until January, after Flint started making national headlines. The Ohio EPA placed two employees on leave while investigating. State records show six other Ohio water systems also did not provide timely warnings to residents after failing lead tests. The systems supply water to mobile home parks, a subdivision, an arboretum and a church and its day care.

In Arizona, several water systems that found unsafe amounts of lead in drinking water samples taken several years ago failed to act until February, after the USA TODAY NETWORK began requesting data about lead levels in drinking water.

The principal at a boarding school near the Navajo Reservation was unaware until February that water from a faucet in a church at the property tested high for lead in 2013. Operators of a small water utility near the Mexico border and a small community system in eastern Arizona both had high lead test results in 2013. One said he didn't know any action was needed. The other conceded the lack of action was an oversight.

Misael Cabrera, director Arizona Department of Environmental Quality, acknowledged lapses in following up with some water systems. Cabrera said he's since asked all water providers for high lead levels to notify their customers. His department also is creating a system to better track compliance.

Without strong action by regulators, problems can fester, especially in small systems with limited resources.

In southeastern Oklahoma's Latimer County, a rural water system serving about 1,500 people has had excessive lead levels during seven testing periods since 2013, EPA data show. The Latimer County Rural Water District #2 failed more tests in the past three years than any water system in the country.

Little has been done to fix the problem. The Latimer #2 district points its finger at its water supplier, and the supplier blames homeowners for not replacing bad plumbing.

"There's nothing we can do," said Linda Petty, office manager for the Latimer #2 district, which doesn't treat its own water. Latimer buys its water from the nearby Sardis Lake Water Authority. "We're at their mercy," she said.

“The water that we have coming out of the lake does not have lead in it,” said Willie Williams, the Sardis Lake system’s operator. “They have some houses in their system that have horrendous plumbing. There’s not a single thing Latimer #2 can do about it and not a single thing I can do about it.”

Customers received notices of the lead issue in their bills, the water system and residents said. County officials say they have not gotten calls from concerned residents.

“I haven’t heard anybody saying anything about it,” said John Medders, a county commissioner whose home is on the system. He recalled getting a notice in the fall. “Most of the time I just throw mine in the trash. I don’t pay much mind to it.”

Water regulators at the Oklahoma Department of Environmental Quality said they now plan to meet with both water systems and send state engineers to Latimer and 18 other water systems that don’t comply with lead-contamination limits.

“The Flint, Michigan, situation has really opened our eyes to what’s going on,” said Patty Thompson, engineering manager for the department’s public water supply group.

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