

Unsafe Lead Levels in Tap Water Not Limited to Flint

By Michael Wines and John Schwartz

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In Sebring, Ohio, routine laboratory tests last August found unsafe levels of lead in the town's drinking water after workers stopped adding a chemical to keep lead water pipes from corroding. Five months passed before the city told pregnant women and children not to drink the water, and shut down taps and fountains in schools.

In 2001, after Washington, D.C., changed how it disinfected drinking water, lead in tap water at thousands of homes spiked as much as 20 times the federally approved level. Residents did not find out for three years. When they did, officials ripped out lead water pipes feeding 17,600 homes — and discovered three years later that many of the repairs had only prolonged the contamination.

The crisis in Flint, Mich., where as many as 8,000 children under age 6 were exposed to unsafe levels of lead after a budget-cutting decision to switch drinking-water sources, may be the most serious contamination threat facing the country's water supplies. But it is hardly the only one.

Unsafe levels of lead have turned up in tap water in city after city — in Durham and Greenville, N.C., in 2006; in Columbia, S.C., in 2005; and last July in Jackson, Miss., where officials waited six months to disclose the contamination — as well as in scores of other places in recent years.

Federal officials and many scientists agree that most of the nation's 53,000 community water systems provide safe drinking water. But such episodes are unsettling reminders of what experts say are holes in the safety net of rules and procedures intended to keep water not just lead-free, but free of all poisons.

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The Environmental Protection Agency says streams tapped by water utilities serving a third of the population are not yet covered by clean-water laws that limit levels of toxic pollutants. Even purified water often travels to homes through pipes that are in stunning disrepair, potentially open to disease and pollutants.

Although Congress banned lead water pipes 30 years ago, between 3.3 million and 10 million older ones remain, primed to leach lead into tap water by forces as simple as jostling during repairs or a change in water chemistry.

“We have a lot of threats to the water supply,” said Dr. Jeffrey K. Griffiths, a professor of public health at Tufts University and a former chairman of the E.P.A.’s Drinking Water Committee. “And we have lots of really good professionals in the water industry who see themselves as protecting the public good. But it doesn’t take much for our aging infrastructure or an unprofessional actor to allow that protection to fall apart.”

Both researchers and industry officials say problems extend well beyond lead. Many potentially harmful contaminants have yet to be evaluated, much less regulated. Efforts to address shortcomings often encounter pushback from industries like agriculture and mining that fear cost increases, and from politicians ideologically opposed to regulation.

Rules and science are outdated. The E.P.A.’s trigger level for addressing lead in drinking water — 15 parts per billion — is not based on any health threat; rather, it reflects a calculation that water in at least nine in 10 homes susceptible to lead contamination will fall below that standard.

And while political leaders upbraid the E.P.A. and state regulators for laggard responses to crises in Flint and elsewhere, they have themselves lagged in offering support. Adjusted for inflation, the \$100 million annual budget of the E.P.A.’s drinking water office has fallen 15 percent since 2006, and the office has lost more than a tenth of its staff.

States are equally hard hit. In 2013, the Association of State Drinking Water Administrators said federal officials had slashed drinking-water grants, 17 states had cut drinking-water budgets by more than a fifth, and 27 had cut spending on full-time employees. “The cumulative effect of the resource gap has serious implications for states’ ability to protect public health,” the group stated.

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As Flint's water crisis surfaced last fall, Congress was considering the E.P.A.'s effort to clarify its regulatory powers over tributaries and wetlands — the streams that supply water to a third of Americans.

Both houses passed legislation to block a new Clean Water Act regulation, the Waters of the United States rule, that aims to assert authority over those waters, which the Supreme Court had questioned in 2001 and 2006 rulings.

And Senator James M. Inhofe, the Oklahoma Republican who is chairman of the Committee on Environment and Public Works, denounced the rule as a federal power grab.

President Obama vetoed that legislation last month, but more than two dozen states have sued to block the rule. Among their arguments: It would hurt business.

An E.P.A. spokeswoman said Friday that the agency hoped to propose strengthened regulation of lead in drinking water in 2017, something the agency's administrator, Gina McCarthy, said was needed in a speech this month in Flint. She pledged then to start "a national conversation about this country's water infrastructure" and resources for states.

Ms. McCarthy has also issued a new policy calling for federal regulators to take a more active role in the face of public health crises.

A Core Problem: Old Lead Pipes



A lead water pipe that was removed from a home in Lansing, Mich. Officials there have replaced 13,500 lead lines since 2004. Laura McDermott for The New York Times

In 2011, the water authority in Brick Township, N.J., an oceanside settlement of 75,000 people, tested tap water in a small sample of homes for lead, as the E.P.A. requires be done periodically. It discovered two homes in which the level exceeded the agency's limit of 15 parts per billion, well short of the number that required remedial steps.

But in the next mandated test, three years later, it found that 16 of 34 homes exceeded the limit — one of them by a dozen times. The growing use of road salt in recent winters, it turned out, had raised chloride levels in the river from which Brick drew its water.

Undetected, the chloride corroded aged lead pipes running to older homes, leaching lead into tap water.

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The town has since added an anti-corrosion agent to its water, but some residents remain wary.

“Why didn’t somebody in the water company realize with all the snow we’ve had in those years that something was going to affect the water?” asked Jeff Brown, 73, whose 1960s-era ranch home was built when lead was allowed in water lines and plumbing. “I hope they’ve learned a lesson.”

The authorities in Brick say the water now meets federal standards. But that is cold comfort to Mr. Brown. “I’m never reassured when they tell you what’s in federal guidelines,” he said. “Who sets the standards?”

Brick is but one example of how lead contamination can elude rules and authorities, potentially for years.

“We need an aggressive program to get rid of lead service lines, starting with an inventory so we know where they are,” said Lynn Thorp, the national campaigns director for Clean Water Action, an advocacy group. “Water systems need to up their game and take this problem more seriously.”

Both scientists and advocates say the rules governing contamination from lead pipes are riddled with loopholes. For example, the E.P.A.’s lead rule requires water systems to test in only a small number of homes with lead pipes — 50 to 100 for large systems — and intervals between testing can stretch to three years.

Water systems use various protocols for tap water tests, and rules allow ordinary homeowners to conduct them unsupervised, raising questions about their consistency. Officials must disclose contamination and take remedial action only if tests show more than 10 percent of sampled homes exceed the standard. Advocates say that lets utilities declare their water safe even if contamination is uncovered.

“Over the last decade we’ve learned that the testing routines did not detect true risk from lead, that there are forms of lead that we’re not testing for and that testing was too infrequent,” said Dr. Griffiths, the former chairman of the E.P.A.’s Drinking Water Committee. “It’s hard to see how the status quo in lead testing for water is adequately serving the public.”

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In December, the Drinking Water Committee endorsed recommendations by an advisory group to strengthen the lead rule in several critical areas. The group said water systems should bolster their anti-corrosion efforts and test more often to ensure that they are working. It called for the E.P.A. to set a standard for lead in drinking water based on its effect on people's health, likely below the current level, and to require water systems to tell homeowners and public-health officials whenever it is exceeded.

Yanna Lambrinidou, who was on the advisory panel, is an adjunct assistant professor of science and technology studies at Virginia Tech, whose experts first disclosed the scope of Flint's lead problem. She dissented from the group's recommendations, arguing that they did not go far enough.

A study for the American Water Works Association, she noted, found that samplings of water that had been sitting in lead pipes had unacceptable lead levels in as much as 70.5 percent of water systems.



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Workers in Lansing, Mich., digging up a lead pipe last month as part of a replacement program. Some residents used to fight the intrusion on their property, said Richard R. Peffley of the local water utility. Since the Flint crisis, he

said, “there’s been no resistance.” Laura McDermott for The New York Times

The advisory group also urged the E.P.A. to require water systems to eventually replace all lead pipes, but it did not address the main obstacle to that goal: cost. At \$5,000 per pipe, by one estimate, that would consume between \$16.5 billion and \$50 billion — and that is but a fraction of the \$384 billion in deferred maintenance the E.P.A. says is needed by 2030 to keep drinking water safe.

Erik D. Olson, head of the health and environment program at the Natural Resources Defense Council, said: “You think our roads and bridges aren’t being fixed? The stuff underground is just totally ignored. We’re mostly living off the investment of our parents and grandparents for our drinking water supply.”

Some systems have gone ahead despite the cost. In Lansing, Mich., not 60 miles from Flint, the Board of Water and Light has replaced 13,500 lead lines since 2004, part of a \$42 million project that has only 650 pipes to go. Some residents used to fight the intrusion on their property, said Richard R. Peffley, the utility’s general manager.

Since the Flint crisis, he said, “there’s been no resistance.”

A Hidden Problem: Unregulated Chemicals

The biggest hole in the drinking-water safety net may be the least visible: the potential for water to be tainted by substances that scientists and officials have not even studied, much less regulated.

The E.P.A. has compiled a list of 100 potentially risky chemicals and 12 microbes that are known or expected to be found in public water systems, but are not yet regulated. In the last 15 years, it also has required water systems to test for 80 additional contaminants to see whether they merit regulation.

So far, it has decided to place limits on just one, perchlorate, a salt found in rocket propellants and explosives. And what an arduous decision it has been: The E.P.A. began tests for perchlorate in 2001 and resolved to regulate it in 2011, but does not expect to publish its proposed rule until March 2017.

There are thousands of other chemicals, viruses and microbes that scientists like Dr. Griffiths say the agency has not begun to assess. The scientists say they can make educated guesses about the potential for harm, and most are harmless or exist in

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vanishingly small amounts. But they also admit they can be blindsided.

“We just don’t have enough research to tell us,” said Rebecca D. Klaper, a professor of freshwater science at the University of Wisconsin-Milwaukee. “This suite of 100 things might be in the water, but you have to have methods and standards developed to measure these things. Unless you have a preconceived notion of what you’re looking for, you don’t know what’s there.”



Rebecca D. Klaper of the University of Wisconsin-Milwaukee with a student, Dylan Olson. “You have to have methods and standards” to assess contaminants, she said. David Kasnic for The New York Times

Toledo, Ohio, shut down its drinking water for three days in 2014 after microcystin, an unregulated toxin produced by algae-like bacteria clogging Lake Erie, tainted its supplies. Microcystin and related toxins, which can cause liver damage and have killed animals, have since been added to the list of potentially dangerous contaminants.

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Another example: Many water systems draw from rivers loaded with nitrates, the product of fertilizer runoff and sewage overflow. But researchers were long unaware that removing nitrates from finished water can leave behind a toxic byproduct, nitrosamines, the cancer-causing chemical found in cooked bacon.

The soup of contaminants in many water sources holds other possibilities for trouble. The E.P.A.'s latest list of potentially risky substances includes some variants of estrogen, compounds from birth-control pills and other pharmaceuticals that are already linked to sexual changes in fish. Individually, they probably pose little risk to humans. Together, Dr. Klaper said, the risk may or may not be greater.

“How do you look at the long-term impact of these trace chemicals?” she asked. “That’s what we’re trying to wrap our heads around. The research that could determine whether anything is a problem is very complicated.”

Ultimately, water problems in Flint and elsewhere suggest a failing in society’s concept of water, said Henry L. Henderson, the Midwest program director for the Natural Resources Defense Council.

“We see safe and sufficient water as a human right,” he said. “It needs to be approached as a public service matter, not a private commercial commodity.”

Cost considerations drove the decision to switch Flint from Lake Huron water to Flint River water, unleashing the lead problems. But water, Mr. Henderson said, has to be more than a matter of the bottom line.

“It doesn’t just come out of the wall,” he said.

Doris Burke and Alain Delaquerière contributed research.