## Research team hikes estimate: At least half of Flint, Michigan homes have lead pipes

James Brewer 1 October 2016

There are many more lead service lines in Flint, Michigan than originally projected, according to a report issued Wednesday by a team of University of Michigan (UofM) researchers. At least half the homes in the city have their water delivered through lead pipes, compared to a much smaller estimate from a study early this year.

The report states: "We can now conclude from this data set that the city records are highly inaccurate and incomplete. The bad news is that lead has been found in nearly every home that has had its service line excavated, and nearly all of the lead pipes were found in the public portion of the line."

The team of scientists is from the Ann Arbor and Flint UofM campuses. They are Jacob Abernethy, assistant professor of electrical engineering and computer science, Dr. Martin Kaufman, the professor of geography in Flint who conducted the study last February to locate the city's lead service lines (LSLs), Eric Schwartz, professor of business, and Troy Rosencrants.

The LSLs became an urgent matter after hundreds of millions of dollars of damage to the city's water infrastructure resulted from 18 months of corrosive Flint River water without an anticorrosion treatment program.

Lead leached from pipes into the city's water as the protective layer of phosphates coating the interior of the pipes was eroded. Flint's 100,000 residents were exposed to unprecedented high levels of lead in their water. Widespread lead poisoning and a major outbreak of Legionnaires disease were the direct outcome.

Mayor Karen Weaver, who was elected last November on promises that she would address the cause of the Flint water crisis, announced that the city would embark on an aggressive campaign to replace all LSLs. The immediate obstacle emerged that due to archaic and incomplete records, many handwritten on paper, the locations or even the number of LSLs was unknown.

Dr. Kaufman presented findings on February 22 based on a 1984 survey that some 8,000 LSLs existed in the city. Where they were was pretty much a crapshoot, but based on that study, homes were selected as first priority to have service lines replaced.

Weaver launched her so-called Fast Start program of replacing lead service lines in March. From the onset, the lackluster effort was beleaguered with difficulties. Firstly, no funding, either federal or state, was put in place that would motivate an aggressive program of replacements. The process of bidding and choosing vendors to carry the work out then bogged down the project. Weaver proclaimed that Fast Start would replace 500 pipes in the most urgently needed locations by August. To date, the number replaced is 171.

The UofM team studied the results of those 171 service line replacements. They anticipated that around 40 percent of the sites excavated would have lead pipes, based on the February study. What they found was that 96 percent of the sites contained lead pipes.

Abernethy told local media, "The records are not trustworthy to the extent that we'd thought they'd be in terms of estimating how much lead there'd be." He added, "Half of Flint may have their water served through a pipe that is made of lead."

Rather than up to 10,000 LSLs to replace, 20,000 to 25,000 may need replacement.

Flint has \$27 million for the rebuilding of its water infrastructure—a task that was originally estimated in the hundreds of millions. The US Congress just passed a compromise deal to provide \$170 million in funding to Flint. If that bill does indeed get implemented, the

funds will be but a fraction of what is needed for the infrastructure alone, especially with the increased number of LSLs indicated in the UofM report.

The water in Flint is still not deemed safe. Authorities have stated that it will be at least next year before it will be safe to drink without special filters. Meanwhile exposure to lead in water is being revealed in major cities throughout the country, most notable in Milwaukee, Wisconsin and Pittsburgh, Pennsylvania.

Professor Marc Edwards, the Virginia Tech University water expert who led the study that exposed the lead crisis in Flint's water, warned at a public progress report on Flint with Michigan Governor Rick Snyder that no one whose water is delivered through lead pipes should consider their water safe, and that they should use certified filters:

"As long as the lead pipes are there and filters are not in place we will never again be able to say water coming through lead pipes, regardless of how good the corrosion control is, is safe by modern standards, not only in Flint but around the United States."

Calling corrosion control a "Band-Aid," he added, "there is no doubt that filters completely eliminate" the risk of lead exposure through tap water.

Snyder's knee-jerk reaction was that he was "not ready" to mandate the use of filters.

Edwards has consistently condemned the US Environmental Protection Agency and the Centers for Disease Control and Prevention for a "culture of corruption" that obstructed the pursuit of public safety in drinking water systems in the US.

It is notable that the use of lead in water systems was not banned by federal law until 1986. It wasn't until 1991 that the Lead and Copper Rule was implemented by the EPA to regulate the effects of lead in water. By that time, federal spending on water infrastructure was slashed drastically by both Republican and Democratic administrations.



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