

According to the EPA, lead contaminates drinking water when plumbing materials, such as pipes, faucets, and fixtures, that contain lead corrode. This is typically seen in older buildings and communities, specifically those built before 1986. The EPA recommends learning about where the water you drink is coming from, testing the drinking water for lead, using the filter, and staying up to date on local construction to help mitigate the likelihood of having lead in your drinking water. In order to address this contamination and the implications of the contamination, the EPA created the Lead and Copper Rule. Prior to 1991, the only rule set in place was the Safe Drinking Water Act that was established in 1974. This was a very broad law set in place to regulate all water that could potentially be used for drinking in the United States. The Safe Drinking Water Act sets a standard for water quality, monitors the states, local authorities, and water suppliers that enforce the standard, and sets maximum contaminant levels for over 90 different contaminants in drinking water. The requirement set in place by the Safe Drinking Water Act was that solder and flux could have no more than 0.2% lead and pipes could have no more than 8% lead.

The Lead and Copper Rule was established in 1991 by the EPA under the Safe Drinking Water Act. All public water systems in the United States must meet the criteria set by the lead and copper rule. The original goal was to minimize the amount of lead and copper in drinking water in the United States. While the rule did not require water systems to zero traces of lead in drinking water, it did put in place the maximum contaminant level goal of zero and tried to establish treatment techniques to reduce the amount of lead in water to be under a set point. Whether or not water gets treated is up to feasibility and convenience, taking into account costs and the technology available. One specific section of the lead and copper rule states that no action is required as long as the water has less than 15 ppb of lead and 1300 ppb of copper, even though any amount of lead and copper in drinking water has been deemed unsafe. Some of the guidelines set by the lead and copper rule include corrosion control treatment (to prevent the corrosion of lead service lines), public outreach and education to inform community members of health impacts related to drinking water that is contaminated with lead, and lead service line replacement which requires water systems to replace seven percent of their lead services each year.

In order to keep the public healthy and safe from the side effects of consuming lead, there have been multiple revisions of the lead and copper rule. The most recent revision was passed in 2021 and was created to better protect communities from this harm. This revision focused on children and low income communities specifically because they are more vulnerable to the health impacts and are more likely to live in neighborhoods with outdated infrastructure. These changes include: using science based testing protocols to find where the lead is, establishing a trigger level for treatments to occur earlier and in more places, completing more lead service line replacements, requiring testing in schools and child care facilities, removing lead from drinking water completely, and requiring water systems to identify and publicize the locations of lead service lines. This revision also focuses on educating targeted communities on the health impacts of consuming lead. According to a Harvard study, 44% of schools asked about their lead testing procedures identified one or more source of water with dangerous levels of lead. Communities have until 2024 to put these practices in place.

This rule and the revisions are crucial to ensuring all citizens have safe drinking water accessible. As stated before, it is especially crucial for low income neighborhoods and

communities made up of historically marginalized groups of people as they are often the ones being impacted by unsafe and outdated systems. Some of the implications of drinking water with lead include cardiovascular impacts, worsened kidney failure, reproductive issues, brain damage, and more. These are permanent and serious side effects that can be present with even the smallest amount of lead, which is a large part of why these regulations are so important. In order for the regulations to be in full effect, all community partners must cooperate.

One example of where lead has impacted historically marginalized communities is the Flint, Michigan water crisis. The state of Michigan has been accused of repeatedly overlooking the risks of using the Flint River without properly testing and treating the water that people would eventually be consuming. Approximately 100,000 were impacted by this oversight, showing dangerously high levels of lead in their blood, and many developed Legionnaires' disease, a serious type of pneumonia, because of the lead contamination. About half of the people affected were Black which made this crisis a prime example of racial inequality. A lawsuit took place and the people who were impacted by this massive oversight were awarded financial compensation based on the extent of their health impacts. This was just one community that encouraged the revision of the Lead and Copper Act.

Now with the revisions being set in place, underserved communities and children will theoretically have a better chance at having safe drinking water. However, in order for the Lead and Copper Rule to be successful, all stake holders must comply with the regulations. We have seen the impacts of people overlooking the rules and they were detrimental. Individual corporations such as schools, businesses, and other systems that produce drinking water for the public must follow the testing, education, and publicizing regulations and the larger systems at hand must hold them accountable to ensure that these standards are being upheld. This is the only way that people living in the United States will have equitable access to safe drinking water.