

Testimony of Lisa Daniels

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Pennsylvania Department of Environmental Protection

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Public Hearing on Lead Exposure and Mitigation

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Good Morning Chairman Yaw, Chairman Yudichak, and members of the Committee. Thank you for this opportunity to talk about the Commonwealth's drinking water systems and lead exposure and mitigation. My name is Lisa Daniels and I am the Acting Deputy Secretary for the Office of Water Programs, and the Director of the Bureau of Safe Drinking Water at the Pennsylvania Department of Environmental Protection (DEP). I am also the President-Elect of the Association of State Drinking Water Administrators (ASDWA), whose 57 members include the 50 state drinking water programs, five territorial programs, the District of Columbia and the Navajo Nation. State drinking water programs are on the front lines every day, ensuring safe drinking water and protecting public health. Their technical assistance and support, as well as oversight of the drinking water systems, are critical to providing safe drinking water and protecting public health.

Today, I would like to talk with you about the Commonwealth's safe drinking water program, the Lead and Copper Rule (LCR), and the challenges that remain in protecting the public from exposure to lead. I will begin with a few facts about DEP's Safe Drinking Water Program.

Safe Drinking Water Program

The Safe Drinking Water Program's principal and enduring mission is public health protection. Vibrant and sustainable communities, their citizens, workforce, and businesses all depend on a safe, reliable, and adequate supply of drinking water. Economies only grow and sustain themselves when they have safe and reliable water supplies. The Commonwealth has more than 8,500 public water systems – which makes us third in the nation regarding the number of public water systems, behind Michigan and Wisconsin. These public water systems serve drinking water to more than 11.3 million people, or 89% of the Commonwealth's population. Public water systems and the customers they serve rely on drinking water program staff to ensure that all applicable Federal and State requirements are met and the water is safe to drink.

The Commonwealth's public water systems can be broken down by the following types of water systems:

- Number of community water systems (CWS) = 1,949
- Number of nontransient noncommunity water systems (NTNCWS) = 1,083
 - These include schools, child care facilities, businesses, etc.
- Number of transient noncommunity water systems (TNCWS) = 5,314
 - These include restaurants, camp grounds, etc.
- Approximately 85% of our CWSs are small systems (serving less than 3,300 people), many of which lack technical, managerial, and financial (TMF) capacity.

Nationally and within Pennsylvania, public water systems face many challenges, including:

- Emerging and unregulated contaminants (per- and polyfluoroalkyl substances (PFAS), *Legionella* and other pathogens, harmful algal blooms and cyanotoxins, etc.)
- Threats to public water supply sources
- Resiliency and sustainability
- Simultaneous compliance (balancing microbial protection with disinfection byproducts and corrosion control treatment)
- Aging infrastructure

Every four years, the American Society of Civil Engineers publishes a Report Card for America's Infrastructure in the form of a letter grade based on the physical condition and needed investments for improvement. In 2014, Pennsylvania's drinking water infrastructure was given a "D" grade.

In addition, the Drinking Water Needs Survey and Assessment (DWNSA) is conducted every four years as mandated by the 1996 amendments to the Federal Safe Drinking Water Act. In the 2011 DWNSA, Pennsylvania documented \$14.2 billion in infrastructure needs for the next 20 years to replace aging facilities and comply with safe drinking water regulations. The needs include:

- \$9.3 billion for transmission and distribution systems,
- \$2.5 billion in treatment needs,

- \$1.6 billion for storage tanks,
- \$611 million for sources of supply, and
- \$200 million for other needs.

Note: The \$9.3 billion needed for distribution systems does not include lead service line replacement.

With this foundation, I would like to talk about lead exposure and the LCR.

Lead Exposure and the Lead and Copper Rule

Exposure to lead is associated with serious adverse health effects to the brain and nervous system, especially in young children. Infants and children exposed to lead may experience delays in physical and mental development, and may show deficits in attention span and learning disabilities. In adults, lead exposure can cause kidney problems and high blood pressure. And while it is important to recognize that major reductions in lead exposure have been achieved over the last 25 years, there is more to do. The recent crisis in Flint, MI has brought increased attention to the challenge of lead in drinking water.

Lead enters drinking water mainly from corrosion of lead containing plumbing materials, including lead service lines (LSL), faucets and fixtures with leaded brass, and pipes with lead solder. Lead was widely used in plumbing materials through the 1950s, and its use continued until 1986, when Congress amended the Safe Drinking Water Act, prohibiting the use of pipes

and solder that are not “lead free”. At the time, “lead free” was defined as solder with no more than 0.2% lead, and pipes with no more than 8% lead.

In 1991, EPA promulgated the LCR to minimize lead and copper levels in drinking water through a treatment technique primarily aimed at reducing water corrosivity (lead solubility) through corrosion control treatment. EPA amended the LCR in 2000 and 2007 to improve the effectiveness of the rule. Provisions of the current rule include:

- An action level of 0.015 mg/L (15 ppb) for lead and 1.3 mg/L (ppm) for copper, based on the 90th percentile sample level. The action level is a technology-based requirement. The maximum contaminant level goal for lead is zero (0); there is no safe level of lead exposure.
- Lead and copper tap sampling in homes meeting high risk criteria (older homes with a LSL or copper pipe with lead solder).
- If the lead or copper action level is exceeded in more than 10% of tap water samples collected during a monitoring period, the water system must take specific follow-up/corrective actions including the following:
 - Issue public education materials
 - Monitor source water quality
 - Conduct a corrosion control treatment (CCT) feasibility study
 - Install and maintain optimized corrosion control treatment (OCCT)

- If the system later exceeds the lead action level following installation of treatment, the system must implement a LSL replacement program (replace 7% per year)

The prohibition on lead was expanded in 1996 and 2011 when Congress included plumbing fittings and fixtures, prohibited their introduction into commerce, and revised the maximum allowable lead content from not more than 8% to not more than a weighted average of 0.25% lead on the wetted surface. The revised “lead-free” definition went into effect in January 2014. While these prohibitions have reduced the amount of lead allowed in plumbing materials, there are many buildings that still have LSLs and/or plumbing materials made with a higher percentage of lead than currently allowed.

According to the National Center for Healthy Housing, Pennsylvania’s housing stock is some of the oldest in the country. Approximately 40% of Pennsylvania’s housing units were built before 1950 and are likely to contain lead paint and leaded plumbing materials. Based on the findings of two surveys conducted by the American Water Works Association (AWWA), a study published in 2016 estimates that Pennsylvania has ~160,000 LSLs. However, the actual number is unknown.

According to Department records, the LCR compliance rates for CY 2016 include the following:

- The universe of public water systems that must comply with the LCR = 3,032 systems (1,949 CWSs and 1,083 NTNCWSs)

- The number of systems in compliance with the lead action level = 2,920 (96%)
- The number of systems **not** in compliance (exceeded the lead action level) = 112 (4%)
- Of these 112 systems, 54 are CWSs and 58 are schools/child care facilities
- In addition, 30 waters systems incurred treatment technique violations for failure to meet public education requirements, failure to maintain water quality parameter values (OCCT), and failure to submit a permit application for CCT treatment.

As you can see by these compliance rates, the LCR continues to be an imperfect rule. Key challenges of the current rule include the following:

- The LCR is one of the most complicated rules for states and water systems to implement due to the need to control corrosivity (or lead solubility) of treated drinking water as it travels through miles of distribution and plumbing systems. This is exacerbated by an aging infrastructure.
- The LCR is the only rule that requires sampling in homes and often by the homeowners themselves. The rule includes complex sample collection and monitoring location requirements intended to identify worst-case conditions. Homeowners must volunteer to have their homes tested. Maintaining a sufficient pool of sample sites is challenging for some systems.
- The selection of CCT and maintenance of OCCT requires an understanding of water chemistry and complex chemical reactions. The water chemistry must be maintained within vary narrow ranges for parameters such as pH, alkalinity, dissolved inorganic carbon, etc. OCCT can be affected by changes in pH, oxidation-reduction potential,

microbial activity, chloride-to-sulfate ratio, natural organic matter, and iron/manganese/aluminum concentrations. All of these factors can adversely impact the protective pipe scale and increase lead solubility.

- There are also simultaneous compliance concerns when water systems try to balance the need for microbial protection with disinfection byproduct formation and OCCT.

EPA is in the process of developing long-term revisions to the LCR. It is expected that a proposed rule may be published in 2018. Some of the key elements under consideration include:

- Requiring proactive LSL replacement and addressing concerns related to partial LSL replacement. It is important to note that LSL replacement presents substantial economic, legal, technical, and environmental justice challenges.
- Improving OCCT requirements.
- Incorporating a health-based benchmark to strengthen protection.
- Considering the potential role of point of use filters.
- Clarifying and strengthening sampling requirements.
- Increasing transparency and information sharing.
- Improving public education.

Once a federal rule is finalized, the Department will work to incorporate the provisions into our regulations. In the meantime, Department staff will continue to work with water systems to improve compliance rates and maintain OCCT through surveillance, training, technical assistance and, when necessary, enforcement.

Summary

In summary, the LCR and amendments offered the water community a promise of enhanced public health protection through a framework of treatment technique requirements aimed at reducing corrosivity and exposure to lead. Much progress has been made, but more work is needed to protect public health and maintain the economic health of our communities. State and federal drinking water programs, in partnership with professional associations, environmental groups and other stakeholders, have come together to identify the problems and find solutions. Partnerships have been formed, such as the LSLR Collaborative, to pull together available resources, provide best practices, and help inform the conversation. The Collaborative is a diverse group of public health, water utility, environmental, labor, consumer and housing organizations, including ASDWA. In January 2017, the Collaborative released an online toolkit to help communities voluntarily develop and implement LSL removal programs. The toolkit includes suggested practices to identify and remove LSLs, available information on funding options, lessons learned from communities across the country, and links to additional resources. More information can be found on the Collaborative's website (www.lslr-collaborative.org). State drinking water programs are committed to fulfilling the promise of ensuring safe drinking water and protecting public health.