



**Testimony of Dr. Christopher Crockett, P.E.
Chief Environmental Officer
PA House Consumer Affairs Committee
May 23, 2018, Harrisburg**

Good morning members of the committee and interested parties. I am Dr. Christopher Crockett, P.E., Chief Environmental Officer for Aqua America and I am here to testify in support of House Bill 2075 sponsored by Representative Alex Charlton. Aqua Pennsylvania has the privilege of serving approximately 1.4 million people in the Commonwealth Pennsylvania.

Aqua Pennsylvania supports House Bill 2075 and I will focus my testimony on why I believe this bill will help our customers and residents across the Commonwealth.

Drinking Water and Lead

First on the drinking water side, when drinking water leaves Aqua's water treatment facilities and enters a customer's property, the water is safe to drink. Lead is not typically found in the streams, reservoirs or wells that serve water supplies or in the main water lines that carry water from treatment plants to homes. Yet, the chemical properties of water can cause lead and other metals to leach into drinking water. The main source of lead in drinking water is from lead service lines (the pipes that deliver water from water mains in the street and into homes) and from typical household plumbing (lead solder and brass fixtures) that contains lead. Before the use of copper for water pipes, lead was once a metal of choice. Before 1986, lead was also a key component of solder used by plumbers when installing home plumbing.

As I mentioned, the risk for lead contamination arises when water passes through lead service lines and household plumbing fixtures and solder used to join pipes and faucets. Lead can cause serious health problems if too much enters the body from drinking water or other sources. It can cause damage to the brain and kidney and can interfere with the production of red blood cells that carry oxygen to all parts of the body. The greatest risk of lead exposure is to infants, young children and pregnant women.

Aqua conducts required testing for drinking water contaminants, including lead and copper, to ensure compliance with state and federal drinking water standards. Aqua tests the water at our treatment plants. Aqua also tests for lead in high-risk sample homes to comply with the U.S Environmental Protection

Agency (EPA) lead and copper rule. According to the EPA, sampling locations must be selected based on priority tied to possible lead exposure. Aqua also works with individual customers who request lead information for their home and will test home for lead and copper at no charge.

The EPA has established more stringent sampling procedures for schools and day care centers. Because children often drink from fountains and faucets at school without flushing the water first, and because they are at higher risk of health effects due to exposure, for their protection, sampling is done differently at schools and day care centers.

Right now, all Aqua can do is test for lead and encourage our customers who have, or think they might have, lead service lines are strongly encouraged to consider replacing their service lines. However, we would like to do more -- particularly in instances where we are already replacing distribution pipe along a street and come across a lead service line.

HB 2075 provides the ability to Aqua to replace the customer owned lead service line that provides water to our customer's premises. This is important for the following reason -- the best practice recommended by the industry and experts is to remove the entire lead service line (LSL) when it is identified. Research by Sandvig et al. (2008) has found the following about lead service lines and their role in introducing lead to customers:

- For sites with lead service lines, the service contributes the greatest percentage of lead measured at the tap.
- When a lead service line is present, it is likely a significant and possibly controlling factor in the total amount of lead measured at that site, and the mass of lead contributed by individual lead sources.
- The most effective way to reduce the total mass of lead measured at the tap is to replace the entire lead service line.

The study also strongly suggested the consumer's portion of the lead service line, which is beyond the jurisdiction of local water utilities, remains an important unresolved source of lead. This issue is beyond the jurisdiction of local water utilities and other resources will be required if it is to be resolved.

Research indicates that a "partial" replacement, which physically disturbs, but leaves in place, the customer's segment of a service connection, potentially elevates the risk of lead exposure through drinking water after the replacement occurs. In fact a 2016 study by Trueman et al. showed that partial Lead Service Line Replacements (LSLR) more than doubled premises plumbing lead release

in the short term and did not reduce lead release in the long term. Even 6 months after partial LSLR, 27% of first-draw lead levels were greater than 15 µg/L (the U.S. EPA action level), compared with 13% pre-replacement. Conversely the study observed within 3 days of a full LSLR had reduced lead levels by more than 50%, and within 1 month, lead levels were significantly lower in every liter of the sample profile. This scientific evidence strongly suggests all efforts should be made to fully replace a lead service line and avoid partial replacements. The best way to do this is to support mechanisms that allow for and encourage full replacement at the time of identification.

Regulated water utilities such as Aqua encounter barriers to helping protect our customers from this significant source of lead. At present, when a PUC regulated water or sewer utility is performing routine main replacement and finds a lead service line, we are only permitted to give the homeowner a notice that recommends they hire a plumber to remediate the issue. Quite simply, many homeowners do not have the means to do this. Ultimately, this leads to the continued risk to the current and future occupants in the home.

Aqua Pennsylvania has produced an educational video on drinking water and lead that can be found at <https://www.youtube.com/watch?v=3lj4Bb7iRzI>. We also have fact sheets and notices to customers on this issue (<https://www.aquaamerica.com/media/31836/Lead%20letter%20for%20June%202016%20mailing.pdf>). Another source of information on lead service line replacement is the Lead Service Line Replacement Collaborative (LSLRC). The LSLRC is a joint effort of 26 national public health, water utility, environmental, labor, consumer, housing, and state and local governmental organizations to accelerate full removal of the lead pipes providing drinking water to millions of American homes. You can also visit the website of the LSLRC at www.lslr-collaborative.org.

Aqua estimates it has about 3,000 customers in Pennsylvania that have lead water service lines. This legislation would allow regulated utilities like Aqua to become part of the solution by replacing this part of the service line as part of its normal operations -- as lead service lines are identified during our ongoing water main replacement efforts.

Damaged Sewer Laterals

Aqua Pennsylvania also supports HB 2075 because it allows for PUC regulated utilities to conduct replacement of damaged privately owned sewer laterals. This legislation would be used when there is an environmental issue facing a particular community.

Private sewer laterals are the portion of the sewer network connecting individual and private properties to the public sewer system. Laterals are often in poor condition, and can have a significant impact on the performance of the sewer system and treatment plant. Cracked or broken laterals can allow groundwater and infiltrating rainwater (clean water) to enter into the sewer system which, at high levels, can cause problems at the treatment facility or overload the sewers and cause sanitary sewer overflows (SSOs) and backups.

Typically, private laterals make up about half of the total length of a sewer system. Even when the system-wide impact of infiltration is not an issue, defective laterals can cause sewer backups, and can be an important issue of concern in public works agencies. The owners of the laterals may be unaware of these problems or unwilling to fix them if the consequences do not directly affect them

Sewer laterals that are damaged on the homeowner side can cause problems that negatively impact all customers in a sewer system including:

- Damaged sewer laterals leak sewage directly into a stormsewer discharging to a stream or a groundwater aquifer contaminating nearby private wells nearby, streams and the local environment,
- Damaged sewer lateral create additional costs for treating essentially clean groundwater at the wastewater plant,
- Damaged sewer lateral cause systems to lose capacity to carry sewage leading to development connection moratoriums.

A study in Milwaukee suggested damaged laterals can create more than 1/3 of the peak flow in sewer systems. According to a Water Environment Research Foundation survey over fifty percent of private laterals are vitrified clay pipe (VCP). VCP is prone to root intrusion, cracks, joint misalignment and general leakage, and private laterals are estimated to contribute about 40 percent of a system's infiltration and inflow

Most property owners have no idea of the condition of their sewer laterals and they will see little or no direct personal benefit from the cost to repair their lateral.

Studies by the Water Environment Research Foundation in 2009, titled Methods for Cost-Effective Rehabilitation of Private Lateral Sewers, examined specific case studies to replace private laterals in communities such as Lower Paxton Township, Pennsylvania; Normal, Illinois; and Washington County, Oregon. These communities met with limited success replacing private laterals contributing inflow until they removed all financial responsibility from the

homeowner and used public dollars to pay for the rehabilitation. Once the public agency assumed 100 percent of the costs, the program participation rates in these three communities increased dramatically.

Aqua believes that that it can be part of the solution of this public health and environmental risk. However, as with lead service lines mentioned earlier, Aqua finds that many homeowners simply do not have the means to replace or repair a damaged sewer lateral and ultimately impact all the customers in the system and the local environment.

In conclusion, I'd like to thank Representative Charlton for trying to solve this public health issue. Aqua's mission is to protect and provide Earth's most essential resource and this legislation will help us do that in a way that also protects public health and the environment. To that end I'd encourage members of this committee to take action on HB2075 as soon as possible. Thank you for your time and I am available for your questions.