

PWSA Issue Paper
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Administrative Order on Corrosion
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Background

Water providers in Pennsylvania are subject to constant oversight from local, state, and national agencies. In Allegheny County that includes the Allegheny County Health Department, the PA Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (EPA). Each agency has different testing and reporting requirements, all have complete access to the provider's records, and may visit and inspect treatment plants and other facilities at any time. Water providers are also required to publish an annual report to its customers on its treatment practices and testing results, and to notify on issues that arose during the year and how they were dealt with.

How water is treated varies among providers for a number of reasons including:

- The water sources vary – different rivers, streams, lakes, ground water, or a combination of all may be the source of a provider's product.
- The distribution systems, including the customers' connections, vary greatly – some are in very old communities, some new communities, and some are a combination.

The Pittsburgh Water and Sewer Authority (PWSA) has only one water source – the Allegheny River. Therefore, the way water is purified at the plant is geared toward the conditions of the Allegheny River. That methodology is not the subject of the Administrative Order.

Once the water leaves the plant, it goes into reservoirs and tanks, main lines, and ultimately into service lines at a customer's residence or business. There is a mixture of customer service line situations, some old connections through lead service lines and some newer through copper lines. The lead service lines and older copper service lines with lead solder and couplings are the focus of interest of providers and regulators.

Part of the required testing routine is to sample the customers with the lead service lines, or interior copper lines with lead solder or couplings, every three years to determine whether lead corrosion is increasing the presence of that metal. If higher levels are detected, customers can change their lines or add filters to their taps. Water providers can also add anti-corrosion agents at plant locations to try and reduce corrosion and lead levels at the tap. The information from customer samples guides the water provider in decisions about which anti-corrosion material should be added or if any other measures can be taken.



Two of the commonly used anti-corrosion additives are soda ash and caustic soda. They are both accepted by regulators, but one may work more effectively depending on a provider's infrastructure. In Pittsburgh's approved plan, soda ash was listed as the primary treatment for corrosion control and caustic soda was listed as a backup.

Corrosion Control Efforts

Since inception 32 years ago, PWSA has proactively studied and implemented corrosion control efforts, including the use of corrosion control additives. In addition to mandatory customer lead testing every three years, PWSA has offered customers free voluntary testing kits and advice on how to mitigate lead levels, if detected at their location.

The results of the mandatory and voluntary testing have shown mixed results. In the mandatory testing, the most recent results of 50 sites showed six properties known to have lead service lines or copper lines with lead solder or couplings with a reading of 14.8 parts per billion lead. This is close to the EPA action level of 15, over which additional actions are required.

The voluntary testing which includes customers system wide shows the following result.

186 results

- 103 were non-detect for lead
- 30 were between 2-4.9 parts per billion
- 26 were between 5-9.9 parts per billion
- 15 were between 10-14 parts per billion
- 12 were above 15 parts per billion

This indicates that 71 percent of the voluntary tests were below 4.9 parts per billion, with the majority being non-detectable for lead.

For those customers reading above 15, PWSA staff contacts them to provide advice on how to proceed if they wish to do so. The Authority also works with customers who decide to replace service lines.

The Administrative Order

If PWSA has such a long record of corrosion control efforts, why has the DEP issued this administrative order?

In 2014, then managers of the system decided to switch corrosion control agents from soda ash to caustic soda. Since both agents were listed in the feasibility plan on file with DEP, they may have thought that this change did not require notification and/or approval from DEP. That was not correct and is the basis of the order from DEP.

In 2015, new water quality staff began seeing changes in the pH balance of the system that, while still within acceptable levels, required further action. A pH level is the acidity of the water which can impact corrosion. The more you control the pH level, the more you can



limit the potential for corrosion by creating a coating in the service line. The scientific finding was made to reverse the earlier decision and go back to soda ash. Again, DEP was not notified of this decision.

On February 18, 2016, in a letter to James Good, then Executive Director of the Authority, the local office of the DEP cited the fact that the switch in primary corrosion control agents was not provided for in the 1995 plan, and that an amended or new plan was not submitted. The letter requested data and records to assess the situation and all of this material was provided. In my first week here in early March 2016, I met with a number of state DEP personnel to review this matter and to assure them that the Authority would not only provide whatever records they wanted but would take additional steps to enhance its lead monitoring practices.

Today the state has finalized its review and issued an Administrative Order. The Authority accepts and will not appeal their decision. Among the requirements are increased testing procedures, additional studies on how anti-corrosion agents deal with pipe corrosion and customer notification. All of these will be addressed.

Conclusion

An internal working group has been preparing water quality recommendations for myself and the PWSA Board of Directors to consider, and we expect to bring this forward in May. The recommendations will incorporate the state requirements listed in the Administrative Order and will include the appointment of an outside panel of experts to advise and monitor PWSA water quality efforts.

For over 30 years, the PWSA has prided itself on delivering a quality product to its customers. The reality is that older systems have special requirements and may need to adjust based on more stringent regulations and expectations from the customers. My belief is the PWSA Board and staff want to be an active partner with regulators and customers, but also a leader in this effort.

For additional information, here are some sites:

1. PWSA Annual Consumer Confidence Report for 2014
http://apps.pittsburghpa.gov/pwsa/2014_CCR.pdf
2. US EPA Safe Drinking Water Hotline 800-426-4791