



HANNIBAL BOARD OF PUBLIC WORKS

ELECTRIC, WATER AND WASTEWATER

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October 1, 2015

Hannibal BPW Customers,

As many of you may have recently heard, the Hannibal Board of Public Works is converting from a chlorine disinfection system to a chloramine system by October 1, 2015. Some of you may also be aware of that we have been in violation of drinking water standards for about 2 years now. The conversion to chloramines should bring us back into compliance in regards to disinfection by products while still delivering a safe drinking water to our customers. The chloramine conversion is the only upgrade to the Water Treatment Plant that is currently under construction. A new Ultra-Violet (UV) light disinfection system is also being added along with some other operational improvements (such as a new carbon feed system) to assist in removing more organics from the drinking water.

Even though it is referred to as a conversion to chloramines, we will still be initially disinfecting with free chlorine like we have for almost a century. Then the drinking water will pass through the new UV disinfection system. Prior to the finished drinking water leaving the Water Treatment Plant, a very small amount of ammonia will be added to stunt the growth of disinfection by products and allow the disinfectant residual to travel to the ends of the piping systems. This residual is necessary to eliminate bacteria growth in the piping system.

Below is an excerpt from the [Environmental Protection Agency](#) (EPA) that contains important information about chloramines.

- *"Chlorine has been safely used for more than 100 years for disinfection of drinking water to protect public health from diseases which are caused by bacteria, viruses and other disease causing organisms. Chloramines, the monochloramine form in particular, have also been used as a disinfectant since the 1930's. Chloramines are produced by combining chlorine and ammonia. While obviously toxic at high levels, neither pose health concerns to humans at the levels used for drinking water disinfection.*
- *Chloramines are weaker disinfectants than chlorine, but are more stable, thus extending disinfectant benefits throughout a water utility's distribution system. They are not used as the primary disinfectant for your water. Chloramines are used for maintaining a disinfectant residual in the distribution system so that disinfected drinking water is kept safe. Chloramine can also provide the following benefits:*
- *Since chloramines are not as reactive as chlorine with organic material in water, they produce substantially lower concentrations of disinfection byproducts in the distribution system. Some*

disinfection byproducts, such as the trihalomethanes (THMs) and haloacetic acids (HAAs), may have adverse health effects at high levels. These disinfection byproducts are closely regulated by EPA. EPA recently reduced the allowable Maximum Contaminant Levels for total THMs to 80 ug/L and now limit HAAs to 60 ug/L. The use of chlorine and chloramines is also regulated by the EPA. We have Maximum Residual Disinfectant Levels of 4.0 mg/L for both these disinfectants. However, our concern is not from their toxicity, but to assure adequate control of the disinfection byproducts.

- Because the chloramine residual is more stable and longer lasting than free chlorine, it provides better protection against bacterial regrowth in systems with large storage tanks and dead-end water mains.*
- Chloramine, like chlorine, is effective in controlling biofilm, which is a slime coating in the pipe caused by bacteria. Controlling biofilms also tends to reduce coliform bacteria concentrations and biofilm-induced corrosion of pipes.*
- Because chloramine does not tend to react with organic compounds, many systems will experience fewer incidences of taste and odor complaints when using chloramine.*

Other concerns with chloramines in drinking water:

Chloramines, like chlorine, are toxic to fish and amphibians at levels used for drinking water. Unlike chlorine, chloramines do not rapidly dissipate on standing. Neither do they dissipate by boiling. Fish owners must neutralize or remove chloramines from water used in aquariums or ponds. Treatment products are readily available at aquarium supply stores. Chloramines react with certain types of rubber hoses and gaskets, such as those on washing machines and hot water heaters. Black or greasy particles may appear as these materials degrade. Replacement materials are commonly available at hardware and plumber supply stores."

If there are specific questions, please contact me (Heath Hall, HBPW Director of Operations) and I would be glad to discuss this or other issues about your drinking water.

Thank You,

Heath N. Hall
Director of Operations
Hannibal Board of Public Works
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“The mission of the Hannibal Board of Public Works is to provide safe, reliability utility products with excellent customer service at reasonable prices.”