Meeting Summary
Natural Resources and Technical Services (NRTS) Committee
June 8, 2016, 5:30 p.m.

Committee Members:	Dave Moreau (Chair), Terri Buckner, Quinton Harper, John Young (ex officio)
Other Board Members:	Heather Payne
Staff:	Monica Dodson, Katie Harrold, Ken Loflin, Mary Darr, Todd Taylor, Ed Kerwin, Ruth Rouse, Stephen Winters, Greg Feller

The NRTS Committee met to review and discuss information regarding OWASA's use of chloramines for distribution system disinfection and the potential impacts on privately-owned plumbing systems and appliances. Detailed information regarding OWASA's disinfection methods and the potential impacts of disinfection on rubber components and dezincification of plumbing fittings is provided in the attachment to the agenda for the meeting.

Disinfection in OWASA's Water Treatment Processes
Monica Dodson provided an overview of OWASA's water treatment process and the chemicals we use for disinfection. The water treatment process includes two disinfection steps: primary and secondary disinfection. Primary disinfection occurs after solids have been settled out and its main purpose is to kill and inactivate pathogens and bacteria. OWASA uses free chlorine for primary disinfection. Primary disinfection does not impact private plumbing.

Secondary disinfection occurs before the treated water is pumped to the distribution system, and its purpose is to prevent potential regrowth of bacteria and pathogens. OWASA uses chloramines for secondary disinfection. Chloramines allow us to meet federal requirements for disinfectant residuals which keeps the water safe in the distribution system and prevents bacterial regrowth while also minimizing the production of disinfection byproducts which are suspected to cause cancer over a lifetime of exposure at high levels. Thus, our disinfection system allows us to deliver safe water.

Impacts on Private Plumbing
Katie Harrold presented information on the potential impacts of the use of chloramine on private plumbing (rubber degradation) and customer concerns regarding dezincification. All rubber used in plumbing (such as toilet flappers, hoses, and linings of expansion tanks) will degrade over time and will need periodic replacement. Different types of rubber are more resistant to different disinfectants. Thus, rubber components that are resistant to chloramines (specifically labeled chloramine resistant, chlorine resistant labelling is not sufficient) will last longer for OWASA's customers. Flexible connectors and supply lines can also degrade. Those that are lined with PVC are resistant to chloramines.

Many of OWASA's customers have thermal expansion tanks which contain a butyl rubber diaphragm that protects the hot water heater (water expands when heated, and the rubber diaphragm accommodates the expanding water). The diaphragms are susceptible to chlorine and chloramines and need to be replaced periodically.

Dezincification is the selective release of zinc from brass plumbing fittings. When zinc is released and forms a meringue, it can impede water flow or cause leaks. OWASA receives approximately 5 calls per year regarding dezincification. The main cause of dezincification is the use of brass with higher zinc content.

Factors that contribute to dezincification of susceptible fittings are direct connection of dissimilar metals, high temperatures (hot water), pH (pH of 8 has highest level), lower alkalinity, higher chloride and sulfate concentrations, and pipes containing stagnant water connected to pipes containing moving water. Recirculating hot water heaters have many of these characteristics, and many of the complaints OWASA receives regarding dezincification are from homes using recirculating hot water heaters.

Recommendations
After discussion, the Committee recommended the following:

- After extensive research into the limited options available for disinfection and the potential adverse effects of each, we have concluded that chloramines remain OWASA's best option as its secondary disinfectant due to the significant reductions in disinfectant byproducts they provide.
- While not related to our water chemistry, we do acknowledge that remedying the impacts of dezincification may be expensive for our customers. We will encourage them to contact us when they encounter dezincification so that we can collect data and provide information to help our customers address the issue.
- We will inform and engage with our customers and other stakeholders such as plumbers, realtors, and home and plumbing inspectors about the safety of our water and our use of chloramines.
- While we appreciate the petitioner (Mr. Art Belden) bringing these issues to the forefront, we do not believe hiring an independent party as suggested by the petitioner is necessary because studies are currently available on the causes of dezincification. We will continue to monitor research in this area.

Staff will work on final wording for recommendations to the full Board. Specific suggestions for meeting the recommendations included the following:

- Provide information to local plumbing supply stores where our customers shop regarding the types of plumbing products that will work best in our system.
- Encourage the Town inspectors to inform homeowners and not just the plumbers about the types of plumbing fixtures that meet plumbing code and are not susceptible to dezincification.
- We should provide enhanced record keeping about customer experiences and encourage our customers to provide us information on these private plumbing issues.

The Committee suggested that staff make an abbreviated version of the NRTS presentation to the full Board at its August 25, 2016 meeting. Staff should provide the petitioner and other interested stakeholders notice that the full Board will discuss the issue at that meeting.

The meeting adjourned at 6:40 PM.

Prepared by:

Ruth C. Rouse

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