Water Quality, Copper Piping, and Hot Water Heaters

Entranosa obtains water from Horton Water Pumping, disinfects it, and provides water to its membership. The delivered water meets the primary requirements of the Safe Drinking Water Act, with the exception of the Copper Rule in some instances. There are characteristics of the water that do not meet some of the secondary (esthetic) standards set by EPA. Secondary standards relate to characteristics such as hardness, taste, etc. but are not related to health issues. In the instance of copper, Entranosa has been working with the Environment Department to resolve that issue. The water is safe to drink.

Water delivered by Entranosa, currently, is highly mineralized (very hard), and mildly corrosive in nature. This is a normal condition for the East Mountain area. Some families decide to soften the water – that is a personal choice. We believe that ion-exchange water softeners, left to themselves and given the characteristics of the water we provide, may contribute to the deterioration of household copper piping system. This is not a situation unique to the water delivered by Entranosa and is reported throughout the East Mountains, the northwest Estancia Basin fringe, Placitas, and other areas of the Nation.

In response to several calls concerning leaks in copper tubing, blue-green stains near faucets and fittings, and failing hot water heaters, we took it upon ourselves to find information on possible causes of the symptoms. We've spoken with the New Mexico Drinking Water Bureau, several builders, plumbers, pipe suppliers, electricians, water softener companies, consulting engineers, other suppliers of drinking water, and our water supplier. We conducted a search of EPA and water quality web sites. We have reviewed an independent study, funded by an Entranosa member, of home construction and our water. Although we are not water chemistry or home construction experts, we offer the following based upon our findings and the statements of those sources:

- The symptoms described above are related to corrosion;
- Reports we've received are not isolated to a specific area on the Entranosa system, but they share three things in common – homes constructed after 1995, water softeners, and copper piping;
- Water softeners contribute to the problem by removing the buffering capability of the water, and providing an increased negative charge to the water;
- Corrosion has many causes and sources. Attaching protective anodes to the homes piping system has been reported to be helpful in some homes, and routinely checking the sacrificial anode in the hot water heater is critical;
- Corrosion can be associated with defective materials, poor workmanship, and poor design of the home piping system;
- Copper piping inside the home must be grounded in accordance with code, and perhaps a little more;
- Local soil conditions must be taken into account when developing the grounding or corrosion control plan for a home;
- Heat affects the process and hot water recirculating systems are particularly affected. The rate of flow within a recirculating system is a causative factor as well – slower is better then faster. Placing them on a time clock is also beneficial;
- Water heaters must be maintained by flushing the tank and replacing the sacrificial anode;
- Anodes in heaters protect the internal components from galvanic action – they sacrifice themselves to protect the exposed metal elements of the heater. Softened water accelerates the deterioration of the anode in this process;
- There have been advances in plastic tubing technology and manufacturing over the years and plastic should be considered as a viable alternative to copper in homes.

We have had reports of this type from about 1% of the installed meters within the system. We believe they are individual and not part of a system wide issue. All problems of this nature should be addressed to the water softener supplier, an electrician, and a plumber. Entranosa will continue to explore the literature on these topics and provide updates to the membership as they become available. In spite of these isolated problems, the water delivered to the meter is safe to drink and remains in compliance with federal and state standards.

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