

Sarasota County FAQs

Pinhole Leaks in Copper Pipes

Pinhole leaks in copper plumbing are a widespread problem that affects property owners throughout the United States and elsewhere in the world. Although much research has been conducted around the issue, no definitive cause has been determined to date. As the leaks were discovered in our area, Sarasota County Utilities was quick to establish a local task force to research the problem and potential solutions. Task force representatives include residents of affected housing developments, professional engineers from Carollo Engineers and Sarasota County Utilities. To work with the task force examining area issues and recommending solutions, Utilities has engaged Dr. Marc A. Edwards of Virginia Polytechnic Institute, an expert with 14 years' experience conducting research in the field of copper corrosion. That work has led Edwards to track pinhole leak occurrences in Alaska, California, Massachusetts, Ohio, South Carolina, South Dakota, Tennessee and Washington, D.C., as well as in Florida. Another expert we have engaged is Dr. Edward Singley, a retired Professor of Environmental Engineering from University of Florida, whose career included extensive research into copper corrosion throughout Florida. As well, we have:

- Conducted a survey of plumbers to develop local/regional information on pinhole leaks. Plumbers report pinhole leaks throughout southwest Florida in new and older homes.
- Compiled historic water quality data and supplemented it with additional water and pipe sample analyses. Data analysis led to no specific indication of the cause of the pinhole corrosion thus far.
- Evaluated alternative methods of corrosion control by researching case studies and engaging other water utilities
- Planned a small study to determine if there is a correlation between pinhole leaks and improperly grounded homes.

Although Sarasota County water quality consistently exceeds strict federal quality standards, including corrosion control, we remain committed to continuing our aggressive research of the problem and to providing updates at this Web site on our progress in identifying causes and solutions. A satisfactory resolution to the pinhole leaks problem is a high priority for us. The following is a list of frequently asked questions that may provide helpful background to our area residents:

Do pinhole leaks affect water safety?

Not at all. **The safety and reliability of County water is our highest priority.** We test constantly to ensure that the proper chemical balance is maintained. Sarasota County's water meets or exceeds all state and federal standards/requirements.

What is Sarasota County Utilities doing about it?

- We are currently working with homeowners to identify trends and to develop possible solutions.
- We are monitoring water quality and incidences of leaks tracked in representative communities.
- In November 2003, we converted to use of a phosphate corrosion inhibitor to optimize our existing corrosion control program.
- We have engaged corrosion and water experts and are participating in a national research project being conducted by the American Water Works Association Research Foundation.

We are further investigating stray electrical currents as a contributing factor in copper corrosion, as has been suggested by numerous studies.

What is Sarasota County's approach to corrosion control?

The U.S. Environmental Protection Agency (EPA) requires that water utilities add safe chemicals to protect drinking water supplies by prohibiting copper from pipes and lead from solder from leaching into and contaminating the water. These chemicals act to form a scale that lines pipes and prevents the release of copper and lead as caused by uniform corrosion of metal pipes. Two common methods widely used by utility companies in the United States employ carbonate or phosphate-based products to line the pipes. The impacts on preventing the formation of pinholes by these methods are not well understood. Until late 2003, our utilities system used a carbonate product as a corrosion inhibitor at our Carlton Water Treatment Facility. This method resulted in historically low copper and lead levels in our system.

Because some utilities systems similar to Sarasota County reported reductions in pinhole-type corrosion after they converted to a phosphate-based product, we switched to a phosphate-based treatment throughout our utilities system in November 2003. Sampling completed in September 2004 indicates the phosphate inhibitor is successfully maintaining copper and lead levels at their historically low levels, but there is presently no data to suggest a change in the number of new pinhole leaks.

At the same time, we continue to explore potential causes, other research and treatment options that are experiencing positive results in other locations. Site-specific factors vary widely from location to location, impacting potential success in addressing this issue. It is significant to note that there is no requirement or prescribed treatment method from the EPA or other regulatory body that addresses the prevention of pinhole leaks.

What can the homeowner do?

Whether installing new piping or re-plumbing faulty pipes, it is important for homeowners to learn about their material choices. Florida's building codes permit the use of copper and plastic pipe for plumbing. Homeowners and builders can determine which material to use. Building grade copper pipe is available in three types: Type M copper has the thinnest walls, and is often sold in hardware stores and plumbing supply houses for residential plumbing installations. Types L and K copper have increasingly thicker walls, cost more and may provide longer service life. Although copper pipe has been used in plumbing for a much longer time and

may be easier to install, modern plastics allowed by building code are corrosion-resistant and do not conduct electricity. Sarasota County does not recommend the use of one material over another, but we do recommend that you research all available materials to determine the best choice for you.

- If you are going to be away for an extended period, turn the water off at your main valve.
- Periodically check the leak detector on your water meter (blue triangle that spins) while no fixture is in use; if it is turning, it may indicate the presence of a leak.

If you see areas that appear damp or water damaged, call a plumber.

What if I notice a leak?

If you notice a leak, contact a licensed plumber to identify the source of the leak and help you determine what repair is needed to solve the problem. Leaks are the homeowner's responsibility, and should not be ignored.

One alternative to re-piping is an epoxy product that is injected into copper pipes. The epoxy seals the pipe entirely from the inside creating a pipe within a pipe. Examine all your options to determine which is best for your home.

What else do I need to know?

Sarasota County Utilities is collecting data relating to pinhole leaks. You can help by providing us with information about your home, whether you have a leak or not. The more information we are able to gather, the better base we will have to help us to understand trends, to isolate or rule out conditions that seem to favor pinhole leaks. Follow this link <http://www.zoomerang.com/survey.zgi?p=U23ATSPYZ5JA> to a questionnaire that will capture your information.

If you do have a leak, please provide us with as much information about the leak as possible: location of the leak, whether it was under the foundation slab, near a fitting, along a straight length of pipe or both, whether the pipe is horizontal or vertical, whether the leak is in a hot or cold water pipe. What type of copper is the pipe? Letters K, L and M describe the thickness of the pipe wall. Type K is the thickest and type M is the thinnest. Stenciled marks on the pipe often give this information. The color used for the stencil should indicate type: Green (K), Blue (L), Red (M). Has your house been unoccupied (the plumbing unused) for an extended time?

If you can provide a section of pipe with a leak to Sarasota County Utilities, that could be very helpful. Label the pipe with as much of the above information as you can, and drop it off at 2817 Cattlemen Road, Sarasota.

You may contact Sarasota County Utilities Customer Service at (941) 861-6790 if you have further questions.

NOTICE OF UPDATE

Since this article was published Sarasota County has announced that on September 1, 2005 they added a new polyorthophosphate blend into the Carlton Reserve water supply (serving south of Clark Road). According to David Cash, Sarasota County Utilities Manager, the inhibitor prevents pinhole leaks from forming, and, for the first time ever, extensive research shows it may even remedy existing holes. The results come from a long-term study conducted at the University of Cincinnati's Corrosion Office in conjunction with the Environmental Protection Agency. Source: Osprey Observer, October 20, 2005