



THE Pipeline

YOUR CURRENT WATER INFO SOURCE

Fall 2017 In this edition...

- A Day in the Life of An Inspection Supervisor
- 2017 Update on "Ice Pigging"
- LTCWRF Emergency Pond Reconstruction
- ACWWA Bonds Refunded
- Winterizing Your Sprinkler System



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a Day in the Life of

Meet Ed ~

Meet Ed T. – ACWWA's Construction Inspection Supervisor. Ed got his start in the water utility business in Oklahoma City in 1987, and has been with ACWWA for 13 years. Ed and his team conduct pre-construction meetings with the contractors who install water and sewer facilities. The inspectors are constantly out in the field keeping watchful eyes on projects under development in our service area to ensure that the contractors are following ACWWA's specifications and rules and regulations when connecting to the water distribution system and the wastewater system. A developer's failure to meet specs and/or follow ACWWA's rules and regulation could result in damage to system infrastructure, or create other issues in the water supply. Ed and his team have crucial roles in helping to keep the water supply safe.

As the construction inspector supervisor, Ed is responsible for overseeing of all new development construction projects, ACWWA's capital improvement projects, emergency repairs, and scheduled repairs. For new developments, Ed and his team ensure that the materials used by contractors for piping are permissible, e.g., ductile iron, PVC, and copper; that pipes are at the proper depth (4.5 feet for water and 6.5 feet for irrigation), and that they are bedded and restrained properly. Ed and his team also oversee the water line and sanitary sewer line testing, and they must be present at all taps and tie-ins.

Ed and his team also are always on the lookout for water theft, meter tampering, and unauthorized hydrant hookups – these activities can harm the water supply, as well as being costly for our ratepayers. Ensuring the safety of the water supply is the number one priority of ACWWA's inspection team.



The Pipeline will periodically profile an ACWWA employee to give our customers a glimpse into A DAY IN THE LIFE OF our staff.

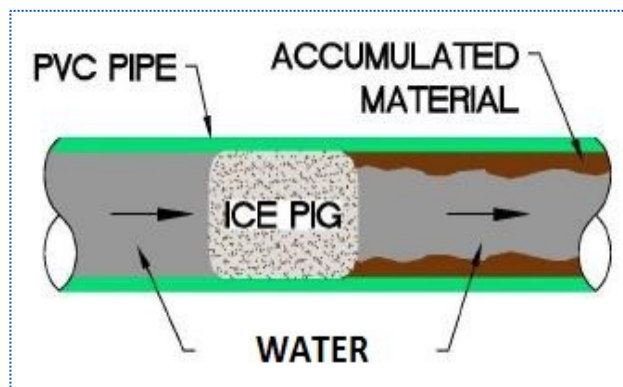
2017 Update

Enhanced Water Main Cleaning Process

("ICE PIGGING")

In the spring of 2016, ACWWA embarked on a new method of cleaning the water mains in our distribution system. ACWWA contracted with the Utility Service Group (USG) to provide an enhanced water main cleaning process termed "ICE PIGGING" to thoroughly clean the inside of almost 70,000 feet of water main piping in selected areas of our distribution system. This method has been available in the United States for a few years. ACWWA provided the logistics and support for this highly effective cleaning process. ACWWA is planning an additional ten days of ICE PIGGING in October 2017.

The water supply for ACWWA consists mainly of groundwater wells to supply our customers with high quality water. The water supply exceeds all requirements of the Colorado Dept. of Public Health and Environment for public water



supplies, but there are trace levels of minerals in the water. This type of ground water, used extensively in the south metro area of Denver, contains trace particles of iron and manganese. These particles tend to settle out in the water mains and require removal periodically. ACWWA normally flushes this material out of the pipelines annually, but the flushing does not fully remove all the material. The ICE PIGGING process consists of inserting an icy slush into the water main in a controlled manner. We then extract the icy slush after it has travelled through the pipelines.

The slush traps the particles in the ice mix, while the ice particles scour the walls of the pipe to provide the enhanced cleaning that is needed for certain areas of the distribution system. The ice material is discharged into the sanitary sewer system and is treated at the Lone Tree Creek Wastewater Treatment Facility.

The customers within the targeted cleaning area will be notified prior to the work being performed. Some areas will have this work performed at night to prevent any disruption of water service during the day. According to ACWWA's Field Operations Supervisor, this pipeline cleaning process is the best method of cleaning pipelines that he has encountered in his 30 years in the water utility industry. ACWWA looks forward to treating additional segments of the 160 miles of distribution system water mains over the next few years. This cleaning process was undertaken to provide ACWWA's customers with the highest water quality possible.



LTCWRF Emergency Pond Reconstruction

ACWWA's Lone Tree Creek Water Reuse Facility (LTCWRF) had a 1.80-million-gallon capacity emergency pond that developed liner defects through normal wear and tear. As a result, operators could not use the emergency pond without a risk of wastewater seeping through the liner and violating the facility permit. In response, ACWWA launched a project to remove and replace the liner. The primary reason to replace the liner was to maintain an operational fail-safe during times of high flow or treatment failures. A secondary reason was to regrade the pond sump, which would allow operators to more effectively and inexpensively treat water from process side streams. The last component of the project was to replace the aeration system. The old aeration system did not work due to system age and pond configuration. The new aeration system is a surface aerator that is properly matched for the new pond configuration and side stream quantities.

ACWWA worked with multiple subcontractors to prepare the site and hired Colorado Lining International (CLI) to install the new liner. CLI finished the liner installation during the final week of August 2017. ACWWA will complete the installation of the aeration system during the month of September, and anticipates the project to be complete by October 2017.



ACWWA Bonds Refunded



On August 22, 2017, ACWWA refunded its Water and Wastewater Revenue Refunding and Improvement Bonds, Series 2007, to achieve significant savings over the remaining term of the bonds (2033). In place of the 2007 bonds, ACWWA issued Water and Wastewater Revenue Refunding Bonds, Series 2017, which are rated AA- by Standard and Poor's. The interest rate on the 2017 bonds is 2.64%, compared to 4.90% on the 2004 bonds. The total reduction in principal and interest payments over the life of the bonds is \$2.4 million.

Ehlers and Associates, Inc. served as ACWWA's municipal advisor, Butler Snow, LLP acted as bond and special counsel, and the underwriters were George K. Baum & Company, and RBC Capital Markets, LLC.



When the leaves start falling and temperatures drop, it is time to shut down the sprinkler system.

Winterizing your sprinkler system will help avoid damage caused by freezing temperatures. The steps necessary for protecting your irrigation system now will help you avoid potentially costly repairs in the spring.

Drains can get clogged or left unopened; water can be trapped in low spots. For added safety and fairly low cost of winterizing, an air compressor may be an option. Blowing out the irrigation system with an air compressor has been proven to be the best method being used today.