

## Lakewood Water District's AMI Meter Replacement Program

In 2012, the District's lost or "unaccounted for water" in the system was over 16.2%. This number went down in 2013 to a projected 15%, but is still not where it should be, as the State Department of Health requires this loss be 10% or less. District staff worked feverishly to complete the full system-wide leak detection survey that was started last year. Through a dedicated effort and tight scheduling, the staff was able to accomplish this work ahead of schedule, including some high traffic areas previously uncertain whether or not they would be able to be surveyed. Nearly all of the leaks in the District's system identified at that time were repaired. Through the survey and correlation process, it was determined the District was losing 121 gallons of water from its system per minute in 53 leaks identified. This accounted for 1.9% of the lost water volume.

The second area investigated was that of the District's meters. If meters are under-reading, only a portion of the water used is being recorded, accounted for, and billed to the customer. Meters were checked to determine the relative age of the meter and the accuracy levels of older meters according to design; meter application was checked (suitable application for certain meters), and how customers use the system now was taken into account. The District even added checking its accounting system into the equation, looking to see if there were areas where this system was rounding, etc., that could lead to additions to the unaccounted-for water. No deficiencies were found in the accounting system, but the staff wanted to leave no stone unturned.

It was discovered that not only had customers changed how they were utilizing their water, but meters tested in several different ways were found to be consistently under-reading and thus contributing to the amount of lost water. The District was losing a great deal of water through its meters. Despite previous abundant water use, studies showed District ratepayers were using water at a level nearly perfectly aligned with the national average, and they were doing so at very low volume flows over the course of the day. This made obvious the fact that the meters were not only under-registering due to possible age and/or default but they were not designed to accurately account for these low flows. District meters were put in service on average, 23 years prior and, at that time, the meters were not designed to read at those low flows. This fact, combined with the fact that within three to five years, parts would no longer be available for the vast majority of the District's aging meters, led the District to investigate a possible meter replacement program.

The District Superintendent spent a considerable amount of time researching and contacting nearly all of the major manufactures, discussing options, possibilities, and price with each, and so narrowed the field down to the two strongest vendors. At the AWWA ACE Conference in June, staff found themselves drawn to not only a meter exchange, but also a new method for collecting the information from the meters, an AMI (Advanced Metering Infrastructure) system. It was determined this system would result in significant labor savings and reduction of work orders and would provide a great deal of benefit to the District and its customers, as it would help determine leaks past the meters in a matter of hours or days versus months, thus reducing costs to the customer

and the District. The management software within AMI would provide monitoring of lost water and sales volumes in near real time and allow staff to actively manage the system. The information available through this infrastructure will allow the District management the opportunity to manage real-time information as opposed to information that is one to two months old.

All information was reported to the Board of Commissioners over due course, culminating with the two top vendors, Sensus and Badger Meter, making presentations at the November 21, 2013 Board meeting. The Board agreed to proceed with a meter replacement program in 2014. The Lakewood Water District posted an ad in *The News Tribune* on December 23, 2013, soliciting proposals for furnishing the District with an Advanced Metering Infrastructure (AMI) system for its drinking water utility by 2 p.m., Friday January 10, 2014.

The District will award the contract to a vendor as early as January 16, 2014 and plans to go to the bond market to acquire the financing for the program in early 2014. Borrowing these funds assures future ratepayers will pay their portion of the costs as well as the current ratepayers.