



Public Services
Department – Public
Works Division

Memo

Date : January 5, 2018
To : Neil Johnson – Mayor
From : Ryan Johnstone – Superintendent of Public Works 
CC : Don Morrison – City Administrator, John Vodopich – Public Services Director, City Council
Re : Water Meter Test Summary

In response to citizen concerns regarding water meter accuracy, the City of Bonney Lake Water Utility, with assistance from City Finance staff, developed a list of water meters to test for accuracy. The initial list included 32 citizens that placed their names on the sign in sheet following the City Council meeting on October 10, 2017. Of the 32 customers included on the list, only 4 had the Neptune radio read meters. It was decided to add an additional 11 customers to the list, all with Neptune radio read meters. These 11 additional customers were customers who had reached out to City staff after the council meeting questioning the accuracy of their water meter.

All 43 meters to be tested were removed on November 20, 2017. The water meters were delivered to the City of Everett meter shop on November 21, 2017 for testing on their meter test bench. The City of Everett meter shop utilizes a 4 meter test bench for meter testing. This test bench utilizes a volumetric water tank with automated controls to deliver a preset quantity of water through the meters. The flow quantity was set at 3 cubic feet (67.32 gallons) for each of the four test flow rates. The initial test was set for a flow rate of 0.50 gallons per minute (gpm), followed by test rates of 2.00 gpm, 10.00 gpm, and finally 20.00 gpm. After each flow test, the technician recorded the reading from each meter. This reading was then compared to the 3 cubic feet of water that flowed through the meters to determine the accuracy of the meters. The results documented for each flow rate included the meter reading, the calculated quantity of water that went through the meter, and the accuracy of the meter expressed as a percentage.

American Water Works Association (AWWA) Standard C700-15 4.2.8.1, Washington State Department of Health (DOH) Group A Drinking Water Regulations, and Washington Administrative Code (WAC) 246-290-496, establish the acceptable water meter accuracy range as +/- 1.50%. Essentially a meter can be within the range of 98.5% to 101.5% and still be considered accurate.

The City of Everett water meter test reports were delivered to Bonney Lake on December 28, 2017. City staff have reviewed all 43 of the meter test reports, and have compiled the following results:

- 3 meters out of the 43 meters tested failed to comply with the accuracy standards. All of these meters failed the test by under registering the flow. One was a Precision manual read meter with an overall accuracy was 92.46%, and two were Neptune touch read meters that registered 80.42% and 91.71% overall.
- Out of the 43 meters tested, 1 tested at 100% overall accuracy, 19 tested between 100-101.25% overall accuracy, and 23 tested between 80.42-100% overall accuracy. The Neptune radio read meters tested between 98.51% and 100.76% overall accuracy. The most accurate meters, as a group, were the Neptune radio read meters.

The tested water meters were retrieved by City of Bonney Lake staff on January 4, 2018. Water division staff re-installed the Neptune radio read meters back to their original locations on January 4-5, 2018. The remaining meters will be retained by the City for at least 4 months (two full read cycles) before disposing of them. The 15 customers that had Neptune radio read meters before the testing process have been receiving non-metered water during the duration of this test period. They will not be charged for water consumption during this test period as a result of this. The Neptune radio read meters that were tested and are being returned will have a minimal amount of flow registered on them from the testing procedure. As these meters are returned to service, Finance staff will be notified, and the normal reading/billing cycles will resume.