

## Reading BWS Meters and the Use of Automated Equipment

The BWS has acknowledged in the past that it has experienced problems with its automated meter reading equipment that led to billing concerns. However, it has acted to address these problems. **There may be some confusion in understanding the differences between BWS meters and Automated Meter Reading (AMR) equipment.**

### BWS Meters

BWS meters are used to register water usage at the customer's property. Even though the AMR components may fail, the meter continues to register water usage, enabling the BWS to still obtain an actual reading.

The BWS tests about 10% of its new meters, when they are received. The meters are then stored until they need to be installed. The BWS repairs and replaces meters on an as-needed basis.

All BWS meter registers tested were within the acceptable test limits specified by the American Water Works Association, the national association of drinking water professionals.

### Automated Meter Reading Equipment

The BWS uses Automated Meter Reading equipment to read its meters. There are three components:

- An ECR (electronic register) that is physically attached to the meter.
- A Meter Transceiver Unit (MXU) that is connected via wire to the ECR.
- A Vehicle Transceiver Unit (VXU) in the BWS's drive-by vehicle.

As the BWS vehicle drives along a meter-reading route, the VXU sends a radio signal to MXUs within range to notify them to transmit, via radio signal, meter reads back to the VXU. The MXU gets the reading from the ECR and sends it back via radio signal, to the VXU. **Failure of any one of these components will result in an "AMR no-read" situation. However, the BWS can and makes every effort to go back and obtain a manual reading from the meter, which continues to register water usage. Currently, the overall meter read rate is at 98%.**

Much of the AMR equipment was installed in the early 2000s. About 5 years ago, many of the AMR components had performed beyond their projected useful lives and started to fail, resulting in decreasing AMR read rates. At the same time, the BWS moved to monthly billing, and did not have enough meter readers to adequately conduct follow-up reads, which consists of taking the manual read of the meter that continues to register water usage. These conditions resulted in a high percentage of estimated usage at that time.

Since then, the BWS has improved its overall read rate by increasing its meter-reading staff positions up to 19 and actively replacing failing AMR components so that the overall read rate is at 98%, which is the BWS's target.

Unfortunately, **despite these efforts to reduce no-reads, due to various reasons, the BWS is not always able to get an AMR reading.** Other reasons include:

- Environmental factors, such as rainy weather which can flood the meter boxes and interfere with the radio signal used to pick up meter readings;
- Physical objects blocking the radio signal sent from the meter, such as a car parked over the meter and objects such as construction material, flower pots and even portable toilets;
- Multiple holidays in a month, which reduces the meter readings picked up.

As the AMR components surpass their useful life expectancies, the BWS is actively working to replace them quickly. According to the City's FY2018 Service Efforts and Accomplishments Report, the BWS estimated about 1.8% of its bills and had an AMR read rate of 81%. Additionally, the BWS has been working to increase its AMR read rate by replacing MXU units as needed while seeking for a contract to do mass replacements of these failing components. In fact, we have a team of 9 employees that are dedicated to this work. As a result, its current AMR read rate has increased to about 85%.

**Meanwhile, due to our efforts to try to secure an actual meter reading whenever possible, the overall unread meter rate is at less than 2%.**

Please note, estimated usage is self-correcting. If a meter reading on an account is estimated one month, the total usage will be corrected the following month once the meter is read. So, if the customer has been over (or under) billed the first month, that billing will be corrected the following month.)