

Leak Detection Program Tariff – BMP 4.1

PURPOSE

A program for the Company to systematically evaluate its water distribution system to identify and repair leaks (Modified Non-Per Capita Conservation Program Best Management Practice Category 4: Physical System Evaluation and Improvement 4.1 Leak Detection Program).

REQUIREMENTS

The requirements of this tariff are governed by Rules of the Arizona Corporation Commission and were adapted from the Arizona Department of Water Resources' Required Public Education Program and Best Management Practices in the Modified Non-Per Capita Conservation Program.

1. The Company shall implement a comprehensive leak detection and repair program to attain and maintain a less than 10 percent unaccounted for water loss in its system(s). The program must include auditing procedures, in-field leak detection and repair efforts. The Company shall take whatever steps are necessary to ensure that its water system is operating at optimal efficiency.
2. On a systematic basis, at least every two years (annually for smaller systems), the Company shall inspect its water distribution system (to include hydrants, valves, tanks, pumps, etc. in the distribution system) to identify and repair leaks. Detection shall be followed by repair or in some cases replacement. Repair vs. replacement will depend upon site-specific leakage rates and costs.
3. Leak Detection efforts should focus on the portion of the distribution system with the greatest expected problems, including:
 - a. areas with a history of excessive leak and break rates;
 - b. areas where leaks and breaks can result in the heaviest property damage;
 - c. areas where system pressure is high;
 - d. areas exposed to stray current and traffic vibration;
 - e. areas near stream crossings; and,
 - f. areas where loads on pipe may exceed design loads.
4. The Company shall keep accurate and detailed records concerning its leak detection and repair/rehabilitation program and the associated costs. Records of repairs shall include: possible causes of the leak; estimated amount of water lost; and date of repair. These records shall be made available to the Commission upon request.
5. The Company shall maintain a complete set of updated distribution system maps.

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6. The Company shall ensure that properly functioning (accurate) and appropriately sized meters are installed on all service and source connections. All meters 1-inch and smaller shall be inspected at least once every ten years or upon registering 1,000,000 gallons of usage, whichever comes first. Meters larger than 1-inch shall be inspected at least once every five years or upon registering 1,000,000 gallons of usage, whichever comes first.
7. The inspection will be accomplished by having the meter pulled and having a Company Technician physically inspect each meter and its fittings for leaks, registers which may have become loose or are not properly attached to the meter and could be under-registering or other broken parts which need repair. In addition, meters shall be randomly selected for flow testing to identify potentially under-registering meters.
8. The Company shall conduct a water audit annually which includes the following steps to determine how efficient each water system is operating and where the losses might be.
 - a. Use coordinated monthly source and service meter readings to calculate how much water enters and leaves the system during the 12 month review period.
 - b. Track and estimate any unmetered authorized uses.
 - c. Calculate the total amount of leakage using the following formula:

$$\text{Unaccounted for water (\%)} = \left[\frac{\text{(Production and/or purchased water minus metered use \& estimated authorized un-metered use)}}{\text{(Production and/or purchased water)}} \right] \times 100$$
 - d. Authorized un-metered uses may include firefighting, main flushing, process water for water treatment plants, etc. Water losses include all water that is not identified as authorized metered water use or authorized un-metered use.
 - e. Determine possible reasons for leakage, including physical leaks and unauthorized uses.
 - f. Analyze results to determine the improvements needed, such as, better accounting practices, leak survey or replacing old distribution pipes.
9. The Company shall keep accurate and detailed records concerning its annual water audit results. These records shall be made available to the Commission upon request.