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## 10. MAINTENANCE/TESTING OF WATER FACILITIES

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### 10.01 Maintenance and Testing of Private Water System Facilities

The owner or their agent of a property served by the District's water system shall be responsible for the operation and maintenance of the private water system facilities, including all devices or safeguards required by this section, which are located upon said property. The owner or their agent's operation and maintenance responsibility is from the building to the connection at the District's water system easement or property line.

The owner or their agent shall, at their own risk and expense, install, keep and maintain in good repair all Water System facilities (water pipelines, mains, valves, meters, equipment, pump systems, backflow devices and related appurtenances) situated on the premises so served. The District shall not be responsible for any loss or damage caused by improper or defective installation of Water System facilities, whether inspected and/or approved by the District. All such installations of Water System facilities shall conform to all Federal, State, County, District and local laws, rules, regulations and ordinances.

The owner or their agent served by the District's Water System shall be responsible and liable for all costs involved in the repair of all damages caused by the owner, customer, or agents thereof, to the District's Water System facilities wherever located.

All Water System facilities found in need of repair as a result of testing procedures required by this chapter shall be repaired and/or installed to the standards set forth in the District Code.

### 10.02 Conditions Requiring Testing of Existing Water System Facilities

It shall be unlawful for any owner of a house, building, or property connected to the District's Water System to maintain private Water System facilities in a condition such that the tests contained herein cannot be successfully accomplished.

All private Water System facilities, including those serving residential, multiple residential, commercial, and industrial connected to the District's Water System shall be brought to then existing District Standards and tested when any of the following conditions occur:

- (a) remodeling of the house, building or property served to an extent of more than 50 percent, as determined by Placer County assessed valuation or,
- (b) installation of additional plumbing fixtures in the house, building or property served or,
- (c) change of use of the house, building or property serviced from residential to business or commercial, or from non restaurant commercial to restaurant commercial or,
- (d) repair or replacement of all or part of the building service line(s) or,

- (e) the addition of living quarters, such as guest cabins on the property served or conversion of garages into living quarters with plumbing fixtures or,
- (f) an inspection by the District indicates reasonable cause or,
- (g) upon a determination of the General Manager that testing or Water System facility replacement is required for the protection of the public health, safety and welfare.

### **10.03 Connection Procedures for New Water System Facilities**

Connections to existing facilities shall be made as indicated on District approved drawings and shall be scheduled and coordinated to result in a minimum disruption of existing system.

The District shall be notified in advance of making any connection to existing system and shall be made only at a time approved and authorized by the District. All facets of work, related to any design, connection, modification of pipe, parts, engineering, etc., must be approved by the District prior to disruption of service or physical connection and are made at the sole responsibility of the Contractor.

### **10.04 Testing Procedures for New or Existing Water System Facilities**

The owner or their agent of a house, building, or property connected to the District's Water System shall conduct all Water System facility upgrades and testing required at their sole expense and shall notify the District 48 hours prior to testing. A District Inspector shall witness testing.

**Water Pipelines:** All building service lines, joint lines, and privately owned pipelines shall be pressure tested as prescribed in this ordinance. Residential service lines may be pressure tested at District's operating pressure and visually inspected for leaks and code conformance.

In the case of building and joint service lines, the test section shall be from the building / District owned connection point (property line) to the point at which the system daylights. The test section includes all private pipelines, including joint service lines, valves, meters, backflow devices or pressure reducing valves, which provide Water service to the parcel in question.

Testing shall be in accordance with one of the following (Note: test failures of existing non-metallic asphaltic composite (AC) pipe shall require entire replacement of the defective pipeline with District approved PVC, Ductile Iron or C900. Installation and testing of the new pipeline shall be in accordance with Section 7, Installation of Water System Facilities, page 27.

- The Contractor shall furnish all materials, equipment and labor for testing the piping system at 150 psi or at 50 psi above working pressure, whichever is greater, or as required by the District. The minimum 150 psi pressure in the system shall not exceed 175 psi at the lowest elevation of the test section without District approval. Residential service lines may be pressure tested at District's operating pressure and visually inspected for leaks and code conformance.

- Each system may be tested as a unit or in sections as shown on plans, or as directed by the District, but each complete system shall successfully meet the requirements specified herein. Testing shall be completed with all pipelines, fittings, saddles, taps, and tie-ins completed and in place.
- The test shall be made by closing valves and pressurizing the test section to the standards in the preceding paragraph. Specified pressure shall be maintained for 3 hours and leakage determined. Leakage shall not exceed 2.5 gallons per day per inch diameter per mile of pipe (0.312 gallons per 3 hours per inch diameter per mile of pipe). If the first test fails to conform to these specifications, a second test may be performed. A second loss exceeding the allowable specification constitutes a failure of the test section, whereupon that section shall be replaced, as needed, and tested in accordance with these specifications.
- All corrections to failed system must be performed in the presence of a District Inspector and subjected to the same test criteria initially performed.
- The Contractor shall, at his own expense, repair any damage to the water facilities, or to any other structures, resulting from or caused by these tests.

### **10.05 Time Limits for Completion of Testing Procedures**

Testing shall be completed in a timely manner as follows:

- Prior to connection to District facilities or to District acceptance of any part of the water facilities, residence, building, or property, or
- Within 30 days of standard notification by the District, or
- Immediately if the General Manager determines that testing and repair are necessary to protect public health and the integrity of the Water System.

The General Manager may defer such requirement upon posting of a performance bond with the District in an amount equal to 125 percent of the General Manager's estimate of the cost of replacing the Water System facility.

In the event that a Water System facility has not been tested within the required time period, the District shall initiate procedures for disconnection.

Testing of any portion of the Water System facility after repair or replacement may be required at any time upon a determination of the General Manager for the protection of the public health, safety and welfare.

### **10.06 Flushing and Sterilization of Water Lines**

All equipment and pipelines intended to carry potable water shall be sterilized prior to placing facilities in service. Sterilizing procedures shall conform to AWWA C651 as hereinafter modified or expanded and the requirements of any governing agency having jurisdiction. Flushing and sterilization shall take place prior to final approval, acceptance and use of the system.

Prior to sterilizing, flush all foreign matter from water facilities to be sterilized. Contractor shall provide all materials and labor to complete process without damage to adjacent properties. Minimum flushing velocities shall be 2.5 feet per second.

The following flow rates will achieve minimum required velocities for the pipe diameter indicated:

<u>Pipe Diameter, inch</u>	<u>Flow Rate, gpm</u>
4	98
6	220
8	390
10	610
12	880
14	1,200

For large diameter pipe where it is impractical or impossible to flush the pipe at 2.5 fps velocity, clean the pipeline in place from the inside by brushing and sweeping, then flush at a lower velocity.

### 10.07 Sterilization of System

- A. **General:** All potable water systems shall be disinfected in accordance with the requirements of AWWA C651. Also, see Technical Specification Appendix.
- B. **Chlorination:** A chlorine-water solution shall be uniformly introduced into pipeline by means of a solution-feed chlorinating device. The solution shall be introduced at one end of the pipeline through a tap in such a manner that as the pipeline is filled with water, the concentration entering the pipe is 50mg/L. In addition, a calcium hypochlorite granular tablet glued to the top of the mainline pipe is an acceptable method of disinfection. An approved method of backflow control shall be installed between solution/water supply and system being disinfected.
- C. **Retention Period:** Chlorinated water shall be retained in the pipeline long enough to destroy all non-spore-forming bacteria or, twenty-four hours at minimum. After the required detention period, samples from representative locations within the test section shall retain a free chlorine residual of 25 mg/L.
- D. **Valve Operation:** During the process of chlorinating the pipelines, all line valves and other appurtenances shall be operated while the pipeline is filled with the sterilization solution.
- E. **Final Flushing/Dechlorination:** After the required sterilization and accepted test results, the solution shall be flushed from the pipeline and appurtenances until the District standard free chlorine residuals are met (.25 mg/L). The solution must be dechlorinated during discharge. Heavily chlorinated water may not be discharged to the environment without dechlorination to 0 mg/L. The CONTRACTOR shall be responsible for providing all flushing and dechlorination equipment and shall be in compliance with all Federal, State and local laws, rules and regulations.