



Issued: March 8, 2010

**To all Users of the Water System Standards:**

The following changes, additions, and/or deletions are hereby made apart of the *Water System Standards* dated March 20, 2002 for projects designed for installation in the Tualatin Valley Water District's system, as fully and completely as if the same were set forth therein.

There are 4 pages included in this Addendum No. 1. This is page 1.

The effective date for incorporating these changes is March 15, 2010.

Approved:

Mark Knudson, P.E.  
Chief Engineer

Authorized:

Gregory E. DiLoreto  
General Manager

## **REVISION OF DISINFECTION PROCEDURE**

Make the following changes in section "Ductile Iron Pipe and Fittings":

1. On page 34, beginning at Paragraph "STERILIZATION", delete in its entirety and Paragraphs "FLUSHING", "DISINFECTION MIXTURE", "POINT OF APPLICATION", "RETENTION PERIOD", "DISPOSAL OF DISINFECTION WATER" and "PURITY TEST" in their entirety.
2. Insert the following:

### **DISINFECTION**

Pipelines intended to carry potable water shall be disinfected before placing in service. Disinfection procedures shall conform to AWWA Standard C651 through C654 and OAR 333-061-00500 (10) (c) and as hereinafter modified or expanded.

### **FLUSHING**

Before disinfecting, flush all foreign matter from the pipeline. Provide hoses, temporary pipes, ditches, etc., as required to dispose of flushing water without damage to adjacent properties. De-chlorinate discharged water utilizing best management practices. Flushing velocities shall be as least 2.5 fps. For large diameter pipe where it is impractical or impossible to flush the pipe at 2.5 fps velocity, clean the pipe in place from the inside by brushing and sweeping, and then flush the line at lower velocity.

### **DISINFECTION MIXTURE**

Disinfection shall be accomplished using the continuous feed method resulting in chlorine-water solution in the pipe having a free chlorine residual of 25-30 mg/l. The disinfection mixture shall be prepared by injecting a calcium or sodium hypochlorite and water solution into the pipeline at a measured rate while fresh water is allowed to flow through the pipeline at a measured rate so that the chlorine-water solution is of the specified strength.

Operate all valves, hydrants, and other appurtenances during disinfection to assure that the disinfection mixture is dispersed into all parts of the line, including dead ends, new services, and similar areas that otherwise may not receive the treated water.

Chlorinating devices for feeding the hypochlorite solutions must provide means for preventing the backflow of water. When using the calcium hypochlorite procedure, first mix the dry powder with water to make a thick paste, and then thin to approximately a one-percent solution (10,000 mg/l chlorine). If liquid sodium hypochlorite is used, dilute the liquid with water to obtain a one-percent solution.

The following proportions of hypochlorite to water will be required:

<u>PRODUCT</u>	<u>QUANTITY</u>	<u>WATER</u>
Calcium Hypochlorite <sup>1</sup> (65-70 percent Cl)	1 lb.	7.5 gal.
Sodium Hypochlorite <sup>2</sup> (5.25 percent Cl)	1 gal.	4.25 gal.

<sup>1</sup>  
Comparable to commercial products known as HTH, Perchloron, and Pittchlor

<sup>2</sup>  
Known as liquid laundry bleach, Clorox, and Purex

Chlorine-water solution used for disinfection with a free chlorine residual in excess of 50 mg/l will not be allowed without specific approval by the Engineer or his/her authorized agent.

#### **POINT OF APPLICATION**

Inject the chlorine solution into the pipeline to be treated at the beginning of the line through a corporation stop or suitable tap in the top of the pipeline. Water from the existing system or other approved source shall be controlled so as to flow slowly into the newly laid pipeline during the application of chlorine. The rate of chlorine solution flow shall be in such proportion to the rate of water entering the pipe that the combined mixture shall contain 40-50 mg/l of free available chlorine. Valves shall be manipulated so that a strong chlorine solution in the line being treated will not flow back into the line supplying the water. Use check valves if necessary.

#### **RETENTION PERIOD**

Treated water shall be retained in the pipeline long enough to destroy all nonspore-forming bacteria. With proper flushing and the specified solution strength, 24 hours is adequate. To minimize damage to cement mortar lining in ductile iron pipe and fittings, disinfection solution contact time shall not exceed 60 hours. At the end of the 24-hour period, the disinfection mixture shall have a chlorine concentration of at least 10 mg/l. If the residual is less than 10 mg/l re-chlorination of the pipe will be required. Do not place the concentrated quantities of commercial disinfectant in the line before it is filled with water. If after the 24-hour period, the chlorine residual is 10 mg/l or greater see Section "PURITY TEST" for detailed procedure.

After chlorination, flush the water from the line until the water through the line is equal chemically and bacteriological to the permanent source of supply."

#### **DISPOSAL OF DISINFECTION WATER**

Dispose of disinfection water in an approved manner. Do not allow disinfection water to flow into a waterway without adequate de-chlorination to eliminate the chlorine residual.

#### **PURITY TEST**

At the end of a 24-hour retention period the chlorine residual in the pipe shall be 10 mg/l or greater. If so, flush the water from the pipe line until the water through the line is equal in chemical and bacteriological properties to the permanent source of supply. After flushing,

collect the 1<sup>st</sup> Bacteriological (total coliform) sample following this flushing and filling of the line. After results of this 1<sup>st</sup> sample passes, collect a 2<sup>nd</sup> Bacteriological (total coliform) sample and after the results of the second sample are available, if both tests indicate the water is free of coliform organisms coordinate placing the pipe line in service with Tualatin Valley Water District personnel.”

### **ADDITION TO REQUIREMENTS FOR BACKFLOW ASSEMBLIES**

1. Section “CROSS CONNECTION CONTROL AND BACKFLOW ASSEMBLIES”:

Any reference to “Detector Meter” throughout this section shall mean that the following specified meter and ancillary equipment shall be provided in conjunction with the backflow assembly (either double check detector or reduced pressure detector backflow assembly):

The detector meter shall be a Badger Recordall Cold Water Bronze Model 25 (5/8" x 3/4") that complies with ANSI/AWWA standard C710. The meter must have a plastic lid and plastic shroud, utilize a bayonet style connector between the register and meter, and be provide with a Torx seal screw to secure the register to the meter. The meter shall measure water flow in cubic feet. The meter shall be provided with a Badger Recordall Transmitter Register (RTR) with an ORION Remote Transmitter. The Orion Remote Transmitter shall be provided with a 25-ft. length of cable prewired at the factory.