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CHAPTER 2

**CROSS CONNECTION CONTROL**

Recieved

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Cross Connection  
Drinking Water Services

## SECTION:

- 8-2-1: Purpose
- 8-2-2: Definitions
- 8-2-3: Maintenance Of Water System
- 8-2-4: Water Supply Protection; Inspections
- 8-2-5: Backflow Prevention Assemblies
- 8-2-6: Installation Requirements
- 8-2-7: Testing

8-2-1: **PURPOSE:** It is the purpose of this chapter that no cross connections will exist except in accordance with this document. (Ord. 70, 3-12-1996)

8-2-2: **DEFINITIONS:** Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.

**AWWA:** American Water Works Association.

**AIR GAP:** The physical vertical separation between the free flowing discharge end of a potable water supply pipeline, faucet or fixture and the overflow rim of an open or nonpressure receiving vessel (tank). Physical separations must be at least twice the diameter of the inlet pipe, but never less than one inch (1"). An approved air gap, if properly maintained, may be installed where the substance which could backflow is hazardous to health.

- APPROVED:** Accepted by the Oregon state health division and the city as meeting an applicable specification stated or cited in this chapter.
- BACK PRESSURE:** The flow of water or other liquids, mixtures or substances under pressure into the distribution pipes of a potable water supply system from any source other than the intended source. Booster pumps, elevated tanks, boilers or other means may result in a pressure greater than the supply pressure.
- BACK SIPHONAGE:** The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply from any source other than the intended source caused by the reduction of pressure in the public water supply system. Breaks in water mains, low water main pressure due to high demand, and firefighting are causes of back siphonage.
- BACKFLOW:** The reversal of the normal direction of flow of water caused by either back pressure or back siphonage.
- BACKFLOW PREVENTER:** An assembly device or means designed to prevent backflow of water, liquid, mixtures or substances. The term "approved backflow prevention assembly" shall mean an assembly that has been manufactured in full conformance with the standards established by the AWWA and approved for use in Oregon by the state health division.
- CITY:** The city of Seneca, Oregon.
- CITY WATER SYSTEM:** All or any part of the facilities for transporting, storing, pumping, treating, distributing or providing water to water service connections and servicing fire hydrants.
- CONTAMINATION:** An impairment of the quality of the potable water by sewage, industrial fluids or waste liquids, compounds or other materials to a

degree which creates an actual or potential hazard to the public health through exposure to disease organisms or substances which may cause harmful physiological effects.

**CROSS  
CONNECTIONS:**

Any physical connection or arrangement of piping or fixtures between two (2) otherwise separate piping systems one of which contains potable water and the other nonpotable water or industrial fluids through which or because of which backflow may occur into the potable water system, whether such can be separated by a valve(s) or not. Bypass connections, jumper connections or any other plumbing arrangements in which it is possible to introduce into any part of the potable water system any polluted or contaminated water, fluid or substance are considered cross connections.

**CUSTOMER:**

Any person, firm or corporation granted water service by the city.

**CUSTOMER LINE:**

The extension of pipe, valves and fittings leading from the water shut off into the customer line premises served.

**CUSTOMER SYSTEM:**

All or any part of the network of pipes, fixtures and plumbing for distributing water on the premises being served past the utility systems shut off.

**DOUBLE CHECK  
VALVE ASSEMBLY:**

An assembly of two (2) independently acting check valves with shutoff valves on each side of the check valves and test cocks for testing the water tightness of each check valve. This assembly is designed for low hazard applications.

**HAZARD:**

The term is derived from the evaluation of the potential risk to public health and the adverse effect of the hazard upon the public water system. The degree of hazard is referred to as low hazard, moderate hazard and high hazard.

POLLUTION:	The presence of any foreign substance (organic, inorganic, radiological, physical or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which adversely and unreasonably affects such waters for domestic use.
PREMISES:	Any building, structure, improvement or parcel of land which now or at some future time receives water service from the city.
REDUCED PRESSURE ZONE BACKFLOW:	An assembly for preventing backflow which has two (2) independent check valves, a differential relief valve located between the two (2) check valves, two (2) shutoff valves, one on the upstream side and one on the downstream side of the check valves, and four (4) test cocks for testing the watertightness of the check valves and the operation of the relief valve. This assembly is designed for high hazard applications.
VACUUM BREAKERS:	Two (2) types of vacuum breakers are the atmospheric type (AVB) and the pressure type (PVB). The difference between the two (2) devices is that the pressure vacuum breaker is spring loaded to assist the device in opening. Both devices open the pipeline to atmosphere in the event of back siphonage conditions only. Neither device is approved vacuum for back pressure conditions. Their primary breakers purpose is to protect the water system from cross connections due to submerged inlets, such as irrigation systems and tank applications. Shutoff valves cannot be installed downstream of atmospheric devices but can be on pressure devices. The devices must be installed above the highest downstream piping.
WATER, NONPOTABLE:	Water which is not safe for human consumption or which is of questionable potability.

- WATER, POTABLE:** Any water which according to state health and federal standards is safe for human consumption.
- WATER PURVEYOR:** The owner or operator of the public potable water system supplying water for public use.
- WATER SERVICE CONNECTION:** The terminal end of the city water system to which the shutoff is attached (i.e., where the water purveyor loses jurisdiction and sanitary control over the water at its point of delivery to the customer's water system). There shall be no unprotected take offs from the service line ahead of any city water shutoff. Service connections shall also include all other temporary or emergency water service connections from the city water system.
- WATER USER:** Any person using any part of the city water system. (Ord. 70, 3-12-1996)

**8-2-3: MAINTENANCE OF WATER SYSTEM:**

- A. **Composition Of Water System:** The water system shall be considered made up of two (2) parts: the utility system and the customer system.
- B. **City Maintenance Of Utility System:** The city shall maintain the utility system facilities which include sources, storage, transmission and distribution mains and service lines and supply potable water to the service connection (point of delivery) of quality meeting the requirements of the Oregon state health division and the national safe drinking water act, PL 93-523 or its successor.
- C. **Water User Maintenance Of Customer System:** The customer system, including the plumbing system(s) within their premises beginning at the utility or system connection, shall be maintained by the water user, and not give cause for any contaminants or pollutants to be introduced that could backflow or back siphon into the public potable water system.
- D. **Backflow Prevention Device:** If, in the judgment of the city designated representative, an approved backflow prevention

assembly is required at the customer's water service connection or within the customer's private water system for the protection of the public potable water system due to the backflow/back siphonage potential of contaminants or pollutants, the city designated representative shall give notice in writing to said customer to install such approved assembly(s) at the customer's own expense; and failure, refusal or inability on the part of the customer to install, have tested and maintain said assembly(s) shall constitute a ground for discontinuing water service to the premises until such requirements have been satisfactorily met. (Ord. 70, 3-12-1996)

**8-2-4: WATER SUPPLY PROTECTION; INSPECTIONS:**

- A. **Discontinuance Of Service:** No water service connection to any premises shall be installed or maintained by the city unless the public water supply is protected as required by state laws and regulations and the provisions of this chapter. Service of water to any premises shall be discontinued by the city if a backflow prevention assembly required by this chapter is not installed, tested and maintained, or if it is found that a backflow prevention assembly has been removed or bypassed, or if an unprotected cross connection exists on the premises. Service will not be restored until such conditions or defects are corrected.
- B. **Inspections:** The customer's system should be open for inspection at all reasonable times to authorized representatives of the city to determine whether cross connections or other structural or sanitary hazards exist. When such a condition becomes known, the city shall deny or immediately discontinue water service to the premises by providing for a physical break in the service line until the customer has corrected the condition(s) in conformance with state statutes and city provisions relating to plumbing and water supplies and the regulations adopted pursuant thereto.
- C. **Installation Of Approved Backflow Prevention Assembly:** An approved backflow prevention assembly(s) for protecting the public water system shall be installed at or near the service connection or immediately inside the building being served, or at the appropriate location upon the approval of the city designated representative, to premises wherever the following conditions exists:
1. There is piping for conveying liquids other than potable water, and where that piping is under pressure and is installed and operated in a manner which could cause a cross connection.

2. There is intricate plumbing and piping arrangements, or where entry to all portions of the premises is not readily accessible to ascertain whether or not dangerous cross connections exist.

3. There are fire protection systems connected to the public water system that are interconnected with an unapproved water supply, pipe material not approved for potable water use, where chemical additives and antifreeze compounds that may be toxic are used, or where stagnant waters that have deteriorated could backflow into the public water system.

4. There are underground sprinkler/irrigation systems that could let water contaminated by weed killers and fertilizers be back siphoned (backflow) into the public water system.

5. There are sprinkler/irrigations systems that provide for chemical injection.

6. There is back siphonage potential.

7. Cross connections or potential cross connections exist. (Ord. 70, 3-12-1996)

**8-2-5: BACKFLOW PREVENTION ASSEMBLIES:**

- A. **Approved Type Of Assembly:** All backflow prevention assemblies required by the Oregon state health division and this chapter shall be of a type and model approved by the health division and are commensurate with the degree of hazard which exists.
- B. **Existing Installations:** All presently installed assemblies which do not meet the requirements of this section, but were approved assemblies for the purposes described herein at the time of installation and which have been properly maintained, shall, except for the inspection and maintenance requirements under subsection 8-2-7A of this chapter, be excluded from the requirements of these rules so long as they satisfactorily protect the public water system. Whenever the existing assembly is moved from the present location or requires more than minimum maintenance or constitutes a hazard to public health, the unit shall be replaced by a backflow prevention assembly meeting the requirements of this section. (Ord. 70, 3-12-1996)

**8-2-6: INSTALLATION REQUIREMENTS:**

- A. **Submerging Prohibited:** No part of the backflow prevention assembly shall be submerged in water or installed in a location subject to flooding. If installed in a vault or basement, adequate drainage shall be provided.
- B. **Protection From Freezing:** The assembly must be protected from freezing and other severe weather conditions.
- C. **Manufacturer's Installation Instructions:** All assemblies shall be installed according to the manufacturer's installation instructions and the "Accepted Procedure And Practice In Cross Connection Control Manual" published by the cross connection control committee, Pacific Northwest section, AWWA. Only assemblies specifically approved by the city designated representative for vertical installation may be installed vertically.
- D. **Minimum Clearance Specifications:** All assemblies shall be readily accessible with adequate room for maintenance and testing. The minimum clearance specified by the manufacturer's installation instructions shall be closely followed.
- E. **Installation Records Kept On File:** Upon completion of installation, the city shall be notified and all backflow protection assemblies inspected by the city designated representative. Each record of backflow prevention assembly shall be kept on file with the city. The file shall consist of date of installation, location, make, model, size and serial number of the assembly and initial test report.
- F. **Pipe Joints:** All pipe joints shall be restrained.
- G. **Assembly Tested:** The assembly shall be tested upon installation by a state certified tester and at least annually thereafter. (Ord. 70, 3-12-1996)

**8-2-7: TESTING:**

- A. **Inspection Required At User's Expense:** It shall be the responsibility of the customer user at any premises where backflow prevention assemblies are installed to have certified inspections and operational tests made at least once per year. In those instances where the city designated representative deems the hazard to be great enough, he may require certified inspections at more frequent intervals. These



inspections and tests shall be at the sole expense of the water customer user. The customer user shall notify the city in advance when tests are to be undertaken so that an official representative of the city may witness the tests if so desired. The repair, overhaul or replacement of any assemblies found defective shall be at the sole expense of the customer user. The results of such testing shall be forwarded to the Oregon state health division and the city within ten (10) days of the date of installation and within thirty (30) days of the anniversary date for the annual testing.

- B. **Failure To Test Assemblies:** If a water customer user fails to have such tests performed as required by subsection A of this section, the city may, upon written notification within ten (10) days, order such required tests be performed by a certified tester and all costs added to the customer user's water bill. (Ord. 70, 3-12-1996)