

# 41 00135

**AN ORDINANCE (2006-4.1)**  
for the  
**CONTROL OF BACKFLOW AND CROSS-CONNECTIONS**  
Amendments to the **Boring Water District #24** existing policy  
**Section 18 Paragraphs 1 & 2**

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FEB - 1 2007  
FIELD SERVICES  
DRINKING WATER PROGRAM

**Section 18. CROSS-CONNECTION CONTROL—GENERAL POLICY**

**1.1 Purpose.** The purpose of this Ordinance is:

**1.1.1** To protect the public potable water supply of Boring Water District #24 (BWD) from the possibility of contamination or pollution by isolating within the consumer's internal distribution system or the consumer's private water system such contaminants or pollutants which could backflow into the public water systems; and,

**1.1.2** To promote the elimination or control of existing cross-connections, actual or potential, between the consumer's in-plant potable water system and non-potable water system, plumbing fixtures and industrial piping systems; and,

**1.1.3** To provide for the maintenance of a continuing Program of Cross-Connection Control which will systematically and effectively prevent the contamination or pollution of all potable water systems.

**1.2 Responsibility.** BWD and the Cross-Connection Inspector shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow of contaminants or pollutants through the water service connection. If, in the judgment of BWD and the Cross-Connection inspector an approved backflow prevention assembly is required (at the consumer's water service connection; or, within the consumer's private water system) for the safety of the water system, BWD and the Cross-Connection, or his designated agent shall give notice in writing to said consumer to install such an approved backflow prevention assembly at a specific location on his premises. The consumer shall immediately install such an approved backflow prevention assembly at the consumer's own expense; and, failure, refusal or inability on the part of the consumer to install, have tested and maintained said assembly, shall constitute grounds for discontinuing water service to the premises until such requirements have been satisfactorily met.

## Section 2. DEFINITIONS

**2.1 Boring Water District or Cross-Connection Inspector.** The Cross-Connection Inspector in charge of the Cross-Connection program of BWD is invested with the authority and responsibility for the implementation of an effective cross-connection control program and for the enforcement of the provisions of this ordinance.

### **2.2 Approved.**

a. The term “approved” as herein used in reference to a water supply shall mean a water supply that has been approved by the health agency having jurisdiction.

b. The term “approved” as herein used in reference to an air gap, a double check valve assembly, a reduced pressure principle backflow prevention assembly or other backflow prevention assemblies or methods shall mean an approval by the administrative authority having jurisdiction.

**2.3 Auxiliary Water Supply.** Any water supply on or available to the premises other than the purveyor’s approved public water supply will be considered as an auxiliary water supply. These auxiliary waters may include water from another purveyor’s public potable water supply or any natural source(s) such as a well, spring, river, stream, harbor, etc., or used waters or industrial fluids. These waters may be contaminated or polluted or they may be objectionable and constitute an unacceptable water source over which the water purveyor does not have sanitary control.

**2.4 Backflow.** The term “backflow” shall mean the undesirable reversal of flow of water or mixtures of water and other liquids, gases or other substances into the distribution pipes of the potable supply of water from any source or sources. See terms Backsiphonage (2.6) and Backpressure (2.5).

**2.5 Backpressure.** The term “backpressure” shall mean any elevation of pressure in the downstream piping system (by pump, elevation of piping, or steam and/or air pressure) above the supply pressure at the point of consideration which would cause, or tend to cause, a reversal of the normal direction of flow.

**2.6 Backsiphonage.** The term “backsiphonage” shall mean a form of backflow due to a reduction in system pressure which causes a subatmospheric pressure to exist at a site in the water system.

**2.7 Backflow Preventer.** An assembly or means designed to prevent backflow



**2.7.1 Air gap.** The term “air gap” shall mean a physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An “approved air gap” shall be at least double the diameter of the supply pipe measured vertically above the overflow rim of the vessel – in no case less than 1 inch (2.54cm).

**2.7.2 Reduced Pressure Principle Backflow Prevention Assembly.** The term “reduced pressure principle backflow prevention assembly” shall mean an assembly containing two independently acting approved check valves together with a hydraulically operating mechanically independent pressure differential relief valve located between the check valves and at the same time below the first check valve. The unit shall include properly located resilient seated test cocks and tightly closing resilient seated shutoff valves at each end of the assembly. This assembly is designed to protect against a non-health (i.e. pollutant) or a health hazard (i.e. contaminant). This assembly shall not be used for backflow protection of sewage or reclaimed water.

**2.7.3 Double Check Valve Backflow Prevention Assembly.** The term “double check valve backflow prevention assembly” shall mean an assembly composed of two independently acting, approved check valves, including tightly closing resilient seated shutoff valves attached at each end of the assembly and fitted with properly located resilient seated test cocks. (See Specifications, Section 10 for additional details.) This assembly shall only be used to protect against a non-health hazard (i.e., pollutant).

**2.8 Contamination.** The term “contamination” shall mean an impairment of the quality of the water which creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids, waste, etc.

**2.9 Cross-Connection.** The term “cross-connection” shall mean any unprotected actual or potential connection or structural arrangement between a public or a consumer’s potable water system and any other source or system through which it is possible to introduce into any part of the potable system any used water, industrial fluid, gas, or substance other than the intended potable water with which the system is supplied. Bypass arrangements, jumper connections, removable sections, swivel or change-over devices and other temporary or permanent devices through which or because of which backflow can or may occur are considered to be cross-connections.

**a.** The term “direct cross-connections” shall mean a cross-connection which is subject to both backsiphonage and backpressure.

b. The term “indirect cross-connection” shall mean a cross-connection which is subject to backsiphonage only.

**2.10 Cross-connections – Controlled.** A connection between a potable water system and a non-potable water system with an approved backflow prevention assembly properly installed and maintained so that it will continuously afford the protection commensurate with the degree of hazard.

**2.11 Cross-Connection Control by Containment.** The term “service protection” shall mean the appropriate type or method of backflow protection at the service connection, commensurate with the degree of hazard of the consumer’s potable water system.

**2.12 Hazard, Degree of.** The term “degree of hazard” shall mean either a pollutional (non-health) or contamination (health) hazard and is derived from the evaluation of conditions within a system.

**2.12.1 Hazard— Health.** The term “health hazard” shall mean an actual or potential threat of contamination of a physical or toxic nature to the public potable water system or the consumer’s potable water system that would be a danger to health.

**2.12.2 Hazard— Plumbing.** The term “plumbing hazard” shall mean an internal or plumbing type cross-connection in a consumer’s potable water system that may be either a pollutional or a contamination type hazard. This includes but is not limited to cross-connections to toilets, sinks, lavatories, wash trays and lawn sprinkling systems. Plumbing type cross-connections can be located in many types of structures including homes, apartment houses, hotels, and commercial or industrial establishments. Such a connection, if permitted to exist, must be properly protected by an appropriate type of backflow prevention assembly.

**2.12.3 Hazard–Pollutional.** The term “pollutional hazard” shall mean an actual or potential threat to the physical properties of the water system or the potability of the public or the consumer’s potable water system but which would not constitute a health or system hazard, as defined. The maximum degree or intensity of pollution to which the potable water system could be degraded under this definition would cause a nuisance or be aesthetically objectionable or could cause minor damage to the system or its appurtenances.

**2.12.4 Hazard–System.** The term “system hazard” shall mean an actual or potential threat of severe danger to the physical properties of the public or the consumer’s potable water system or of a pollution or contamination which would have a protracted effect on the quality of the potable water in the system.



**2.13 Industrial Fluids.** The term “industrial fluids” shall mean any fluid or solution which may be chemically, biologically or otherwise contaminated or polluted in a form or concentration which would constitute a health, system, pollution or plumbing hazard if introduced into an approved water supply. This may include, but not be limited to: polluted or contaminated used waters; all types of process waters and “used waters” originating from the public potable water system which may deteriorate in sanitary quality; chemicals in fluid form; plating acids and alkalies; circulated cooling waters connected to an open cooling tower and/or cooling waters that are chemically or biologically treated or stabilized with toxic substances; contaminated natural waters such as from wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems, etc.; oils, gases, glycerine, paraffins, caustic and acid solutions and other liquid and gaseous fluids used industrially, for other processes, or for fire fighting purposes.

**2.14 Pollution.** The term “pollution” shall mean an impairment of the quality of the water to a degree which does not create a hazard to the public health but which does adversely and unreasonably affect the aesthetic qualities of such waters of such waters for domestic use.

**2.15 Water-Potable.** The term “potable water” shall mean any public water supply which has been investigated and approved by the health agency. The system must be operating under a valid health permit. In determining what constitutes an approved water supply, the health agency has final judgment as to its safety and potability.

**2.16 Water-Non-potable.** The term “non-potable water” shall mean a water supply which has not been approved for human consumption by the health agency having jurisdiction.

**2.17 Water-Service Connection.** The term “service connection” shall mean the terminal end of a service connection from the public potable water system, (i.e., where the water purveyor may lose jurisdiction and sanitary control of the water at its point of delivery to the consumer’s water system). If a water meter is installed at the end of the service connection, then the service connection shall mean the downstream end of the water meter.

**2.18 Water-Used.** The term “used water” shall mean any water supplied by a water purveyor from a public potable water system to a consumer’s water system after it has passed through the service connection and is no longer under the control of the water purveyor. See section 7.2.3.33.

## **Section 3. REQUIREMENTS**

### **3.1 Water System**

**3.1.1** The water system shall be considered as made up of two parts: The Water Purveyor's System and the Consumer's System.

**3.1.2** Water Purveyor's System shall consist of the source facilities and the distribution system; and shall include all those facilities of the water system under the complete control of the purveyor, up to the point where the consumer's system begins.

**3.1.3** The source shall include all components of the facilities utilized in the production, treatment, storage and delivery of water to the distribution system.

**3.1.4** The distribution system shall include the network of conduits used for the delivery of water from the source to the consumer's system.

**3.1.5** The consumer's system shall include those parts of the facilities beyond the termination of the water purveyor's distribution system which are utilized in conveying potable water to points of use.

### **3.2 Policy**

**3.2.0** In administration of the Cross Connection Program BWD shall, at its discretion, apply the practices, Procedures, and criteria for determining appropriate levels of protection in accordance with the most recently published version of the following:

**1)** Oregon Administrative Rules 333-061-0005 to 0020, 0070 through 0074 and OAR 166-200-0110, and ORS448.279 or as published and periodically amended.

**2)** Oregon State Plumbing Specialty Code

In administration of the cross connection control program BWD shall, reference as a guideline the following industry standards as consistent with Oregon Administrative Rules and Oregon State Plumbing Specialty Code.

**3)** The most recent edition of the "Cross Connection Control Manual, Accepted Procedures and Practices," published by the Pacific Northwest Section of the American Water Works Association.

**4)** The most recent edition of the "Manual of Cross Connection Control," published by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California.



5) The "Standards and Specifications" of BWD.

6) BWD's internal Cross Connection Control Procedures.

**3.2.1** No water service connection to any business or commercial establishment shall be installed or maintained by the water purveyor unless the water supply is protected as required by BWD's rules and regulations and this cross-connection and backflow control ordinance. Service of water to any business or commercial establishment shall be discontinued by the BWD if a backflow prevention assembly required by this cross-connection and back flow ordinance is not installed, tested and maintained, or if it is found that a backflow prevention assembly has been removed, bypassed, or if an unprotected cross-connection exists on the premises. Service will not be restored until such conditions or defects are corrected. Residential service connections will also be required to install backflow assemblies if it is found to be a backflow hazard or potential hazard. If a backflow assembly is required at a residence the same regulations shall apply to the residences as to business.

**3.2.2** The consumer's system should be open for inspection at all reasonable times to authorized representatives of the BWD to determine whether unprotected cross-connections or other structural or sanitary hazards, including violations of these regulations, exist. When such a condition becomes known, the Cross-Connection Inspector shall deny or immediately discontinue service to the premises by providing for a physical break in the service line until the consumer has corrected the condition(s) in conformance with the BWD's statutes relating to plumbing and water supplies and the regulations Adopted pursuant thereto.

**3.2.3** An approved backflow prevention assembly shall also be installed on each service line to a consumer's water system at or near the property line or immediately inside the building being served; but, in all cases, before the first branch line leading off the service line wherever the following conditions exist:

**a.** In the case of premises having an auxiliary water supply which is not or may not be of safe bacteriological or chemical quality and which is not acceptable as an additional source by the Cross-Connection Inspector, the public water system shall be protected against backflow from the premises by installing an approved backflow prevention assembly in the service line commensurate with the degree of hazard.

**b.** In the case of premises on which any industrial fluids or any other objectionable substance is handled in such a fashion as to create an actual or potential hazard to the public water system, the public system shall be protected against backflow from the premises by installing an

approved backflow prevention assembly in the service line commensurate with the degree of hazard. This shall include the handling of process waters and waters originating from the water purveyor's system which have been subject to deterioration in quality.

**c.** In the case of premises having (1) internal cross-connections that cannot be permanently corrected or protected against, or (2) intricate plumbing and piping arrangements or where entry to all portions of the premises is not readily accessible for inspection purposes, making it impracticable or impossible to ascertain whether or not dangerous cross-connections exist, the public water system shall be protected against backflow from the premises by installing an approved backflow prevention assembly in the service line.

**3.2.4** The type of protective assembly required under subsections 3.2.3a, b, and c shall depend upon the degree of hazard which exists as follows:

**a.** In the case of any premise where there is an auxiliary water supply as stated in subsections 3.2.3a of this section and it is not subject to any of the following rules, the public water system shall be protected by an approved air gap or an approved reduced pressure principle backflow prevention assembly.

**b.** In the case of any premise where there is water or substance that would be objectionable but not hazardous to health, if introduced into the public water system, the public water system shall be protected by an approved double check valve backflow prevention assembly.

**c.** In the case of any premise where there is any material dangerous to health which is handled in such a fashion as to create an actual or potential hazard to the public water system, the public water system shall be protected by an approved air gap or an approved reduced pressure principle backflow prevention assembly. Examples of premises where these conditions will exist include sewage treatment plants, sewage pumping stations manufacturing plants, hospitals, mortuaries and plating plants.

**d.** In the case of any premise where there are unprotected cross-connections, either actual or potential, the public water system shall be protected by an approved air gap or an approved reduced pressure principle backflow prevention assembly at the service connection.

**e.** In the case of any premise where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to make a complete in-plant cross-connection survey, the public water system shall



be protected against backflow from the premises by either an approved air gap or an approved reduced pressure principle backflow prevention assembly on each service to the premise.

**3.2.5** Any backflow prevention assembly required herein shall be a make, model and size approved by the Cross-Connection Inspector. The term "Approved Backflow Prevention Assembly" shall mean an assembly that has been manufactured in full conformance with the standards established by the American Water Works Association entitled:

AWWA/ANSI C510-92 Standard for Double Check Valve Backflow Prevention Assemblies;

AWWA/ANSI C511-92 Standard for Reduced Pressure Principle Backflow Prevention Assemblies;

and, have met completely the laboratory and field performance specifications of the Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern CALIFORNIA (USCFCCCHR) established in:

Specifications of Backflow Prevention Assemblies--- Section 10 of the most current edition of the Manual of Cross-Connection Control.

Said AWWA and USC FCCCHR standards and specifications have been adopted by the Cross-Connection Inspector of the BWD. Final approval shall be evidenced by a "Certificate of Compliance" for the said AWWA standards; or "Certificate of Approval" for the said USC FCCCHR Specifications; issued by an approved testing laboratory. The following testing laboratory has been qualified by the BWD Cross-Connection Inspector to test and approved backflow prevention assemblies:

Foundation for Cross-Connection Control and Hydraulic Research  
University of Southern California  
KAP-200 University Park MC-2531  
Los Angeles, California 90089-2531

Testing laboratories other than the laboratory listed above will be added to an approved list as they are qualified by the Cross-Connection Inspector.

Backflow preventers which may be subjected to backpressure or backsiphonage that have been fully tested and have been granted a Certificate of Approval by said qualified laboratory and are listed on the laboratory's current list of approved backflow prevention assemblies may be used without further test or qualification.

**3.2.6** It shall be the duty of the consumer at any premise where backflow prevention assemblies are installed to have a field test performed by a certified backflow prevention assembly tester upon installation and at least once per year. In those instances where the BWD Cross-Connection Inspector deems the hazard to be great enough he may require field test at more frequent intervals. These tests shall be at the expense of the water user and shall be performed by a certified tester approved by the BWD Cross-Connection Inspector. It shall be the duty of the Cross-Connection Inspector to see that these tests are made in a timely manner. The consumer shall notify the Cross-Connection Inspector in advance when the tests are to be undertaken so that an official representative may witness the field tests if so desired. These assemblies shall be repaired, overhauled or replaced at the expense of the consumer whenever said assemblies are found to be defective. Records of such tests, repairs and overhaul shall be kept and made available to the Cross-Connection Inspector.

**3.2.7** All presently installed backflow prevention assemblies which do not meet the requirements of this section but were approved devices for the purposes described herein at the time of installation and which have been properly maintained, shall, except for the testing and maintenance requirements under subsection 3.2.6, be excluded from the requirements of these rules so long as the Cross-Connection Inspector is assured that they will satisfactorily protect the water purveyor's system. Whenever the existing device is moved from the present location or requires more than minimum maintenance or when the Cross-Connection Inspector finds that the maintenance constitutes a hazard to health, the unit shall be replaced by an approved backflow prevention assembly meeting the requirements of this section.

**3.2.8** The BWD Cross-Connection Inspector is authorized to make all necessary and reasonable rules and policies with respect to the enforcement of this ordinance. All such rules and policies shall be consistent with the provisions of this ordinance and shall be effective thirty days after being filed with the clerk of the BWD.



INTRODUCED AND READ at a regular meeting of the Board of Commissioners on April 11, 2006, followed by a second reading at a regular meeting of the Board of Commissioners on May 9, 2006, and adopted by an affirmative vote of a majority of the Board of Commissioners.

Dated: May 9, 2006

**BORING WATER DISTRICT**

By: *MS Fisher*  
- Board Chair -

ATTEST:  
By: *Alan J. Nichols*  
Sec. Treas

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Dated: May 9, 2006

**BORING WATER DISTRICT**

By: \_\_\_\_\_ Pat Bigelow

Board Chair

ATTEST:

By: \_\_\_\_\_ John Melvin

Secretary Treasurer