

**BOOTHBAY REGION
WATER DISTRICT**

**CROSS-CONNECTION CONTROL
PROGRAM**

Revision III

Effective Date: 1 December 2010

I. PURPOSE AND SCOPE

- A. To protect the public potable water supply served by the Boothbay Region Water District from the possibility of contamination or pollution by isolating, within its customers internal distribution system, such contaminants or pollutants which could backflow or back-siphon into the public water system.
- B. To promote the elimination or control of existing cross-connections, actual or potential, between its customers in-plant potable water system, and non potable systems.
- C. To provide for the continuing maintenance of a cross-connection control program which will effectively prevent the contamination or pollution of all potable water systems.

II. AUTHORITY

This program gains its enforceability from Title 22, Maine Revised Statutes Annotated (MRSA) , subchapter 42(1), 42(3), 2612 (2) and 2612(5), Maine Department of Human Services Cross-Connection Rules number 10-144A CMR 226. In addition, authority arises from provisions in the Occupational Safety and Health Act as well as from Rules and Regulations as published by the Boothbay Region Water District and as approved by the Maine Public Utilities Commission.

III. DEFINITIONS

- A. Anti-Backflow Device - a device or means to prevent backflow
- B. Approved Source – a source of water utilized by a public water system for distribution to the public for consumption or other purposes and which is approved by the Department of Human Services for said use following an approved treatment process, if any, as required by the Department.
- C. Backflow – the flow of water or other foreign liquids, gases, mixtures, compounds or other substances into the distribution system of the public water supply from any source other than the intended.
- D. Backflow Preventor – a device or means to prevent backflow, subdefined as follows:
 - 1. Air Gap – a physical separation sufficient to prevent backflow between the free flowing discharge end of the potable water system and any other system.
 - 2. Atmospheric Vacuum Breaker – a device which prevents back siphonage by creating an atmospheric vent where there is either a negative pressure or a sub-atmospheric pressure in a water system.
 - 3. Backflow Preventor with Intermediate Atmospheric Vent – a device having two check valves separated by an atmospheric vent.
 - 4. Double Check Valve – a device having two, weight or spring loaded bronze-faced check valves with soft rubber discs and test cocks for periodic testing.

5. Hose Bib Vacuum Breaker – a device which is permanently attached to a hose bib and which acts as an atmospheric vacuum breaker.
 6. Pressure Vacuum Breaker – a device containing a spring loaded check valve and a spring loaded atmospheric vent which opens when the pressure approaches atmospheric. It contains valves and fittings, which allow for periodic testing.
 7. Reduced Pressure Principle Backflow Preventer – an assembly of check valves and a reduced pressure zone, which spills water to the atmosphere in the event of failure of the check valves. It has valves and fittings, which allow for periodic testing.
- E. Back-Pressure – a condition where the owner’s system pressure is greater than the supplier’s system pressure.
 - F. Back Siphonage – backflow resulting from a negative pressure in the distribution pipes of a public water supply system.
 - G. Containment – a method of backflow prevention that requires a backflow preventor at the water service entrance.
 - H. Cross Connection - Any physical connection or arrangement between two otherwise separate systems, one of which contains Potable water and the other which contains water of unknown or questionable safety and/or steam, chemicals, gases or other contaminants whereby there may be a flow of unapproved water to a water supply.
 - I. Department – State of Maine, Department of Human Services
 - J. Fixture Isolation - a method of backflow prevention in which a backflow preventor is located to prevent cross-connection at an in-plant unit rather than at the water service entrance.
 - K. Owner – any individual, tenant, corporation, political body or sub-division or other entity who has legal title to or license to operate or habitate in a property upon which a cross-connection inspection is to be made or upon which a cross-connection is present.
 - L. Permit - a document issued by the Department with the approval of the Supplier that allows the use of backflow preventor.
 - M. Person – any individual, partnership, company, public or private corporation, political sub-division or agency of the State, department, or an agency or instrumentality of the United States or any other legal entity.
 - N. Potable Water - An approved water, free from impurities present in any amount sufficient to cause disease or harmful physiological effects. Its physical, bacteriological, chemical and radiological quality conforming to the requirements of the Maine State Safe Drinking Water Act or regulations pertaining thereto.
 - O. Private Water Source – any source of water which may or may not be approved by the Department, utilized by any Owner for consumptive and/or other purposes, and which is not under the immediate control of the Supplier

- P. Public Water System - Any publicly or privately owned system of pipes, structures and facilities through which water is obtained for or sold, furnished or distributed to the public for human consumption, if such system has at least 15 service connections, regularly serves an average of at least 25 individuals daily at least 30 days out of the year or bottles water for sale. Any publicly or privately-owned system that only stores and distributes water, without treating or collecting it; obtains all its water from, but is not owned or operated by a public water system; and does not sell water or bottled water to any person, is not a "public water system". The term "public water system" shall include any collection, treatment, storage or distribution pipes, structures or facilities under the control of the supplier of water and used primarily in connection with such system, and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. The system shall not include the portion of service pipe owned and maintained by a customer of the public water system.
- Q. Supplier – The Boothbay Region Water District
- R. Water Service Entrance - that point at which the Owner's water supply system is beyond the sanitary control of the Supplier. This will ordinarily be the outlet of the meter and will always be before the first branch line.

IV. ADMINISTRATION

- A. The Supplier shall not permit any cross-connections at any point within its system unless deemed necessary and approved by the supplier. All parties seeking approval of a cross connection must submit an application for approval to the supplier.
- B. The Owner shall allow his/her property to be inspected for possible cross-connections and shall follow the provisions of this program or the Department's rules and regulations if a cross-connection is permitted.
- C. All connections to a public water system, including connections provided specifically for fire suppression systems, shall be evaluated by the supplier for cross-connection potential and degree of hazard.
- D. All cross connections shall be protected by backflow prevention devices, assemblies, and methods specified in the Maine State Internal Plumbing Code 02-395 CMR 4 (latest revision).
- E. The Owner shall be responsible for ensuring the proper operation and maintenance of an anti-backflow device and the periodic regular testing of the device as required by the Maine State Internal Plumbing Code or the public water supplier.
- F. The Supplier shall be responsible for the administration of its cross-connection control program and ensuring that backflow preventers installed for containment purposes are periodically tested as required at the Owners expense.

V. RESPONSIBILITY

A. Suppliers Responsibility

1. The Supplier's inspection for all cross-connections or potential cross-connections shall be during normal working hours unless otherwise arranged with the Owner.
2. The Supplier shall, after the initial inspection of the Owner's premises, inform the Owner by letter of any correction(s) and the time allowed for the correction(s), which will not be in excess of fourteen (14) days. The availability of an approved backflow preventor will be considered, and a time extension may be granted at the Superintendents discretion.
3. The Supplier will not allow any cross-connection to remain unless it is protected by an approved backflow preventor, for which a permit has been issued, and which is regularly tested and operates satisfactorily. Note: certain fixtures are exempted from this provision and are listed in Section VIII.
4. The Supplier shall inform the owner by letter of any failure of compliance by the time of the first re-inspection. The Supplier will allow a maximum extension of fourteen (14) calendar days for the correction to be made. If there is a failure to comply by the date of the second re-inspection, the Supplier shall inform the owner by letter that water service to the Owners premises shall be terminated in accordance with the Suppliers rules and regulations for non-compliance.
5. If the Supplier determines at any time that a serious threat to the public health exists, service shall be terminated immediately.
6. Reestablishment of service before the installation of a backflow preventor may be allowed by the Supplier after an agreement has been made between the Supplier, the Owner, and/or the Department indicating the intention of the Owner to comply with the provisions of the agreement and after the Supplier determines that no immediate threat to the public health exists.
7. The Supplier shall conduct an inspection and re-inspection program which covers all industrial and commercial customers 1 to 4 times per year. Number of inspections needed per year shall be based upon the degree of hazard as evaluated by the supplier.
8. The Supplier shall ensure that all-new construction, including residential, complies with this program and with the Maine State Plumbing Code. A copy of the Plumbing Inspectors Certificate of Completion shall be obtained before water service is provided.
9. The Supplier shall inspect dwellings with more than two (2) units and require that they comply with this program. In addition, the Supplier shall inform the owners of the dwelling with two (2) or less units of potential hazards of cross-connections, giving example of possible backflow situations. The Owner of any dwelling, residence, institution or business shall be required to install a backflow preventor in accordance with this program.

10. The Supplier shall be responsible for the administration of this program and for ensuring that periodic testing of all backflow preventors are performed.

B. Owners Responsibility

1. The Owner, after being informed by letter from the Supplier shall, at his expense install, and maintain any backflow preventor deemed necessary on his premises within 14 days from date of notice.
2. The Owner shall correct any malfunction of the backflow preventor which is revealed by Supplier testing. This includes the replacement of parts or of the backflow preventor if deemed necessary by Supplier or Department within 14 days from date of notice.
3. The Owner shall inform the Supplier by letter of any new proposed or modified cross-connections and also of any cross-connections of which the Owner is aware but have not been found by the Suppliers instructions.
4. Any Owner having a private water source must have a reduced pressure principle device installed if the private source is cross-connected to the Suppliers system. Permission maybe denied to cross-connect by the Supplier or the Department. The Owner of a private water source maybe required to have a backflow preventor at the service entrance, even if the source is not cross-connected to the Suppliers system.
5. The Owner shall not install a bypass around a backflow preventor unless there is a backflow preventor installed on the bypass. Owners who cannot shutdown for testing must provide additional backflow preventors to allow for the periodic testing of each device.
6. The Owner shall not install any backflow preventor not listed or approved by the Department.
7. The Owner shall install the backflow preventor in a manner approved by the Supplier and or the Department. Pit installations are strongly discouraged and must have Department approval before a permit will be issued. As a minimum the pit shall have a leak proof cover, a self draining floor, electrical service to provide light and heat, be properly vented and designed for human habitation.
8. If the Owner installs plumbing to provide potable water for domestic purposes which is on the Suppliers (i.e. street side of a backflow preventor) said plumbing shall also have backflow preventer.

VI. DEGREE OF HAZARD

A. For the purpose of these rules the following classifications of Degree of Hazard and associated definitions shall apply:

1. Low Degree of Hazard- a contamination hazard as defined in the Maine State Internal Plumbing Code 02-395 CMR 4 (latest revision).

If a backflow were to occur the resulting health significance would be limited to minor changes in the esthetic quality such as taste, odor or color. The foreign substance must be non-toxic and non-bacterial in nature with no significant health effect.

2. High Degree of Hazard- a contamination hazard as defined in the Maine State Internal Plumbing Code at 02-395 CMR 4 (latest revision).

If a backflow were to occur, the resulting effect on the water supply could cause illness or death if consumed by humans. The foreign substance may be toxic to humans either from a chemical, bacteriological or radiological standpoint. The effects of the contaminants may result from short or long-term exposure.

3. Residential Hazard - Any connection that has the same level of hazard as a typical residential household. Public water suppliers can increase protection from residential cross connection hazards using anti-backflow devices at the discretion of the supplier.

VII. PERMITS

- A. The supplier shall not allow a cross-connection within the public water system unless deemed necessary and approved by the supplier and protected by an approved backflow-prevention method.
- B. All cross-connection approval application should be submitted to the supplier for review and approval.
- C. Records of cross-connection approvals and devices shall be kept on file with the supplier as long as the cross connection is present and until five years after the cross connection is eliminated. Records of tests for testable cross connection control devices shall be kept on file with the supplier for 5 years after the date of the test. Records must be available for inspection by the Department staff.
- D. It shall be the supplier's responsibility to review the degree of hazard of the cross-connection, assign and proper hazard classification to a specific cross-connection and designate the proper classification on the specific cross-connection application.
- E. The owner shall apply for approval of a cross-connection on appropriate forms provided by the supplier and submit said application to the supplier.

- F. The supplier shall record on the application the degree of hazard (High, Low, or Residential) and the determination as to whether or not the cross connection is approved. Cross connections shall be reviewed for re-approval at the discretion of the supplier. Requests for re-approval of a cross connection shall be reviewed by the supplier, and if no changes have occurred, the cross connection shall be automatically renewed. If changes have occurred during any approved period, the cross connection application shall be reviewed by the supplier for a modification to the degree of hazard determination.
- G. Cross connection approvals shall be non-transferable.

VIII. EXEMPTIONS

- A. Any cross-connection protected against backflow at the time this program becomes effective may continue with the same protection unless:
 - 1. The supplier and /or Department considers the condition of any portion of the device to be such that replacement should be made, or
 - 2. The degree of hazard is changed.
- B. Refer to the Maine State Internal Plumbing Code 02-395 CMR 4 (latest revision), for specific fixture isolation requirements.
- C. The Commissioner may grant one or more exemptions from this rule to a public water system or owner, if the following exist:
 - 1. The exemption will not result in an unreasonable risk to the public health;
 - 2. The public water system or owner is unable to comply with the regulation due to compelling factors, not including economic factors.
- D. An exemption shall not alter the degree of hazard classification of the cross-connection and shall not exclude the use of some appropriate anti-backflow device not necessarily assigned to the particular degree of hazard assigned to the cross-connection. Prior to granting an exemption, the Commissioner shall provide notice in a local newspaper and give an opportunity for public hearing on the proposed exemption. Each exemption may also be conditioned on monitoring, testing, analyzing or other requirements to ensure the protection of public health, and shall include a compliance schedule.

IX. PERIODIC TESTING

It is recognized that any backflow preventer can fail and any method of protection can be subverted. Therefore, periodic testing, depending upon the degree of hazard, and inspections are necessary. This includes all types of backflow prevention, excluding residential dual checks. Therefore:

- A. Periodic testing shall be performed by any one or combination of the following: the Supplier; or a person who has been certified for testing backflow devices by the New England Water Works Association and is approved by the Supplier.

- B. Any backflow preventer that fails during any test shall be immediately repaired. The Supplier shall require that the Owner order repair parts within twenty-four (24) hours and that shipment be by the most expedient means possible. Any delay or repair for more than fourteen (14) days require termination of service or some other means to insure the protection of the public water system and the safety of the public health.
- C. Certain situations with Low or High degree of hazard shall not be allowed to continue unprotected if the backflow preventor fails and cannot be immediately repaired.

Note: It is re-emphasized that in order to minimize down time, the Owners should be encouraged to have replacement or repair parts on hand.

X. RESIDENTIAL SERVICES

- A. All new service connections shall have a State of Maine approved backflow preventor, as specified by the Supplier, installed on the service line before water service is turned on.
- B. All other residential service connections shall have a State of Maine approved backflow preventor installed on the service line. The Supplier will determine the type of backflow preventer.
- C. The cost of installation and maintenance of all residential backflow devices shall be borne by the Owner.

XI. COMMERCIAL AND INDUSTRIAL SERVICES

All industrial establishments shall have a State of Maine approved Reduced Pressure Principle backflow preventor (RPZ) installed on the service line, immediately after the meter and before the first branch line.

All commercial establishments shall have a State of Maine approved backflow preventor installed on the service line, immediately after the meter and before the first branch line. The type of device shall be determined by the actual or potential degree of hazard as determined by the Supplier.

XII. FIRE PROTECTION SERVICE LINES

Service lines with direct connection from the Utilities water mains only, and having no pumps, tanks or reservoirs without any physical connection from other water supplies and not having any antifreeze or other additives and all other sprinkler drains discharging to atmosphere shall have a State of Maine approved inline testable double check valve assembly installed on the service line and before the first branch.

Service lines with direct connection from the Utilities water mains and having any one or all of the following: elevated storage tanks, fire pumps taking suction from aboveground covered reservoirs or tanks and provided these storage facilities are filled with public water only and that the water in the tanks are kept in a potable condition shall have a State of Maine approved double check valve installed on the service line that is connected to the Utilities water main and before the first branch line.

Service lines with direct connection from the Utilities water mains and interconnected with auxiliary supplies, e.g. pumps taking suction from rivers, ponds, wells, reservoirs exposed to contamination, where antifreeze or other industrial water systems shall have a State of Maine approved reduced pressure principal (RPZ) backflow preventor installed in such a manner to protect the public water supply.

In such instances where protection of the public water supply is needed from fire protection service lines, and such requirements are not included in the above, the Utility will assess the degree of protection required. If any modification or a renewal to an existing sprinkler service is made, then at that time a State of Maine approved in-line testable backflow preventor shall be installed.

XIII. LIFE SAFETY SYSTEMS

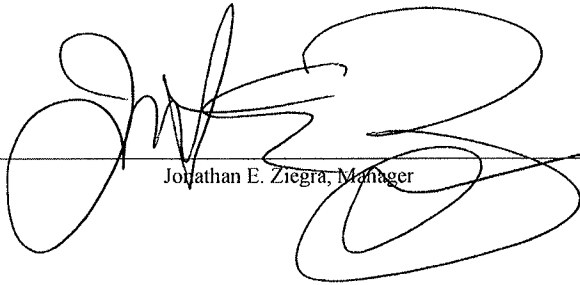
If a customer's domestic supply line is used for sprinkler heads, then a State approved double check valve assembly shall be installed after the meter and before the first branch line.

XIV. TYPE OF BACKFLOW PREVENTION REQUIRED

- A. State of Maine approved backflow prevention devices of the type specified in Table 1. shall be installed on each domestic water service line to the following types of facilities. Information in Table 1. is a guideline and should not be construed as complete.

Table 1 REQUIRED BACKFLOW PREVENTION DEVICES	
Type of Facility	Type of Protection
Barber/Beauty Shop	DC/RP
Beverage Bottling Plants	DC
Car Wash	RP
Cemeteries	RP
Chemical Plants	RP
Dairies	DC
Dental Office	RP
Dry Cleaners	RP
Film Laboratory or Processing Plant	RP
Florist Shop, with irrigation and plant growth	RP
Florist Shop, without irrigation and plant growth	DC
Food Processing	DC
Gas Station, pumps only	DC
Garage for equipment and vehicle repair	RP
Hospitals, Clinics, Medical Buildings	RP
Laundries with Dry Cleaning	RP
Laundries without Dry Cleaning	DC
Metal Plating and Processing Plant	RP
Morgues and Mortuaries	RP
Nursing Homes	RP
Petroleum Storage Yards	RP
Piers, Docks, Waterfront Facilities	RP
Print Shops	RP
Restaurants with Soap Eductors and/or Industrial Type Disposal	RP
Sand and Gravel Plants	RP
Sprinkling or Irrigation Systems	RP
Swimming Pools	RP
Sewerage Treatment Plants	RP
Sewerage Treatment Pumping Facilities	RP
Tanneries	RP
Veterinary Establishments	RP

DC – Double Check Valve Assembly
 RP – Reduced Pressure Zone Principal Device

Approved  Date: 1 December 2010
Jonathan E. Ziegler, Manager