

**KENNEBUNK, KENNEBUNKPORT, & WELLS
WATER DISTRICT'S
CROSS-CONNECTION CONTROL PROGRAM**

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KENNEBUNK, KENNEBUNKPORT & WELLS WATER DISTRICT CROSS CONNECTION PROGRAM

I. SUMMARY

Cross-connections between water supplies and non-potable sources of contamination represent one of the most significant threats to health in the water supply industry. This program is therefore designed to maintain the safety and potability of the water in the District's system by preventing the contamination of drinking water by the backflow of water or other liquids, gases, mixtures, compounds, or any other substances into the public water distribution system.

II. AUTHORITY

This program gains its enforceability from title 22, M.R.S.A., C-601, sub-chapter 2, section 2612(5), Maine Department of Human Services Cross-Connection Rules number 10-144A CMR 226. In addition, authority arises from provisions in the State of Maine Plumbing Code, Occupational Safety and Health Act, as well as from Rules and Regulations as published by the Supplier.

III. DEFINITIONS AND GENERAL REQUIREMENTS

- A. 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.
- B. Backflow- The undesirable reversal of flow of water or mixtures of water and other liquids, gases, or any other substance(s) into the distribution pipes of the potable supply of water from any source(s). See terms backsiphonage and backpressure.
- C. Backflow preventer-Any effective device used to prevent backflow into a potable water system. The type of device used shall be based on the existing or potential degree of hazard, and backflow condition, and shall be installed in a manner approved by the Manufacturer, Supplier and / or the Department. The types of backflow preventers are:
 - 1. Air gap- (AG)- A physical separation between the free flowing discharge end of a potable water supply pipeline and an open and 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. Atmospheric vacuum breaker- (AVB)- The AVB consists of a float check, a check seat, and an air inlet port. A shutoff valve immediately upstream may be an integral part of the device. The AVB is a non-testable assembly designed to allow air to enter the downstream water line to prevent backsiphonage. This unit may never be subjected to a backpressure condition or have a downstream shutoff valve, or be

installed where it will be in continuous operation for more than 12 hours. (The AVB must always be installed a minimum of 6 inches above all downstream piping and highest outlet or flood rim level.)

3. Backflow preventer w/intermediate atmospheric vent- A non-testable assembly having two check valves separated by an atmospheric vent. Typically used for a residential boiler supply line.
 4. Double check valve-assembly- (DCVA)- An assembly composed of two independently acting, approved loaded check valves, including tightly closing shutoff valves located at each end of the assembly and fitted with properly located test cocks. This assembly shall only be used to protect against a nonhealth hazard.
 5. Hose bib vacuum breaker- An assembly, which is permanently attached to a hose bib and acts as an atmospheric vacuum breaker thus protecting against backsiphonage only.
 6. Pressure vacuum breaker- (PVB)- An assembly consisting of an independently operating internally loaded check valve, an independently operating loaded air inlet valve located on the discharge side of the check valve, with properly located test cocks and tightly closing shutoff valves attached at each end of the assembly designed to operate under pressure for prolonged periods of time to prevent backsiphonage. The pressure vacuum breaker may not be subject to any backpressure. (The PVB must always be installed a minimum of 12 inches above all downstream piping, the highest fixture flood level rim, outlet, or highest point of water use.)
 7. Reduced pressure principle backflow prevention assembly- (RP)- An assembly containing two independently acting approved loaded 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 test cocks and tightly closing shutoff valves at each end of the assembly. This assembly is designed to protect against a non-health or a health hazard.
- D. Backpressure- A pressure, higher than the supply pressure, caused by a pump, elevated tank, boiler, air \ steam pressure, or any other means, which may cause backflow.
- E. Backsiphonage- 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.
- F. Containment- Backflow prevention which incorporates a backflow preventer at the water service entrance.
- G. Cross-connection- 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. By-pass arrangements, jumper connections, removable sections, swivel or change-over devices and other temporary or permanent devices through which or because

of which backflow can occur are considered to be cross-connections. The term "direct cross-connection" shall mean a cross-connection that is subject to both backsiphonage and backpressure. The term "indirect cross-connection" shall mean a cross-connection which is subject to backsiphonage only.

- H. Department- The State level Agency which has jurisdiction over the Cross-Connection Program.
- I. Fixture isolation- A method of backflow protection in which an approved backflow preventer is installed at the source of the potential contamination, rather than containment.
- J. Owner- Any individual, tenant, corporation, political body or sub-division or any other entity who has legal title to operate or habitate in a property upon which a cross-connection is present.
- K. Permit- A document issued by the department with the approval of the supplier, which allows the use of a backflow preventer.
- L. Person- Any individual, partnership, company, public or private corporation, political sub-division or agency of the state, department, or agency or instrumentality of the United States or any other legal entity.
- M. Potable water- An approved water, free from impurities present in any amount sufficient to cause disease or harmful physiological effects, and its physical, chemical, bacteriological and radiological quality conforming to the Federal Safe Drinking Water Act, or any regulations pertaining thereto.
- N. 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.
- O. Public water system- Any publicly or privately owned system of pipes, structures, and facilities through which potable water is sold, furnished or distributed to the public for human consumption, and which is under control of the Supplier. The system shall not include the portion of service pipe owned and maintained by the Owner.
- P. Supplier- The Kennebunk, Kennebunkport, & Wells Water District.
- Q. Water service entrance-The point at which ordinarily will be the outlet side of the water meter and will always be before the first branch line.

IV. ADMINISTRATION

- A. The Supplier shall develop and operate a cross-connection control program, including keeping necessary records, which fulfills the requirements of the Department's cross-connection rules and is approved by the Department.
- B. The Supplier shall not permit any cross-connections at any point within the Owners water system unless approved pursuant to a permit specifically issued for that cross-connection.
- C. The Owner shall allow his or her property to be inspected for possible cross-connections and shall follow the provisions of this program and the Department's Rules and Regulations if a cross-connection is permitted.

- D. If the Supplier requires that the public supply be protected by containment, then the Owner shall be responsible for water quality beyond the outlet end of the containment device.
- E. The Owner shall make every effort to remove all unnecessary cross-connections, to eliminate the need for a backflow prevention device.

V. **RESPONSIBILITY**

A. **Supplier's Responsibility**

1. The Supplier's inspection for all cross-connections or potential cross-connections shall be during normal working hours unless otherwise arranged.
2. The Supplier shall, after the initial inspection of the Owner's premises, inform the Owner by letter of any needed correction(s), the method of correction(s) and the time allowed for the correction(s). At the end of allowed time, a re-inspection will be conducted.
3. The Supplier will not allow any cross-connection to remain unless it is protected by an approved backflow preventer, for which a permit has been issued, and which is regularly tested and operates satisfactorily.
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 two calendar weeks 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 Owner's premises shall be terminated in accordance with the Supplier's rules and regulations.
5. If the Supplier determines at any time that a serious threat to the public health exist, service shall be terminated immediately as allowed by Maine Public Utilities Commission, Chapter 81, Section 7 (A)(8).
6. The re-establishment of service before the installation of a backflow preventer 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 exist.
7. The Supplier shall maintain an inspection and re-inspection program that includes all commercial and industrial customers as deemed necessary.
8. The Supplier shall maintain a program to review and inspect all new construction as deemed necessary.
9. The Supplier shall be responsible for the administration of this program and for ensuring that periodic testing of all backflow preventers are performed, as required in the permit.

B. Owner's Responsibility

1. The Owner shall, at his/her expense, install, maintain, and ensure the testing of any backflow preventer deemed necessary on his/her premises.
2. The Owner shall correct any malfunction of the backflow preventer that is revealed by periodic testing. This includes the replacement of parts or of the backflow preventer if deemed necessary by the Supplier or the Department. Failure to comply with testing, repairing, or replacement requirements will result in termination of service, according to the Supplier's regulations.
3. The Owner shall inform the Supplier by letter of any new or modified cross-connections and also of any existing non-permitted cross-connections.
4. Any Owner having a plumbed private water source within the building or establishment shall have a reduced pressure principle device installed whether or not the private source is cross connected to the Supplier's system. Permission may be denied to cross-connect by the Supplier or the Department.
5. Owners who cannot shut down for testing must install parallel devices so that water service is not interrupted during testing of each device.
6. The Owner shall only install backflow preventers listed or approved by the Supplier and the Department.
7. The Owner shall install the backflow preventer(s) in a manner approved by the Manufacturer, Supplier and \ or the Department.
8. If the Owner installs plumbing to provide potable water for domestic purposes, on the Supplier's side of a backflow preventer, said plumbing may at the discretion of the Supplier require a backflow preventer.

VI. DEGREE OF HAZARD

Different types of cross-connections constitute different degrees of hazards that are classified as follows, listed with approved devices.

Class 1-If backflow were to occur, the resulting effect on the water supply would be limited to minor changes in the esthetic quality such as taste, odor, and color. The foreign substance must be non-toxic and non-bacterial in nature and have no significant health effect.

Acceptable devices:

1. Air gap (AG)
2. Atmospheric vacuum breaker (AVB)
3. Pressure vacuum breaker (PVB)
4. Double check valve assembly (DC)
5. Reduced pressure principle device (RP)

Class 2-If backflow were to occur, the resulting effect on the water supply would be a significant change in esthetic qualities. The foreign substance must be non-toxic and non-bacterial in nature.

Acceptable devices:

1. Air gap (AG)
2. Pressure vacuum breaker (PVB)(for backsiphonage only)
3. Double check valve assembly (DC)
4. Reduced pressure principle device (RP)

Class 3-If 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 and may result from either long or short-term exposure.

Acceptable devices:

1. Air gap (AG)
2. Reduced pressure principle device (RP)

VII. PERMITS

- A. The Department upon recommendation of the Supplier will issue permits.
- B. Permits will be issued only if the cross-connection is deemed necessary and cannot be eliminated.
- C. The degree of hazard, testing frequency, type, size, model, and make of backflow preventer shall be listed on the permit. If more than one device is used to protect a single cross-connection, they shall all be listed on the permit.
- D. Permits are non-transferable and shall be renewed by the Department every five years.
- E. The Supplier shall determine the degree of hazard to be listed on the permit.
- F. The Owner shall apply for a permit on appropriate forms to be provided by the Supplier, and shall submit said application to the Supplier in triplicate along with any sketches or plans required by the Supplier.
- G. The Supplier shall forward two copies of the permit application to the Department along with recommendations as to whether or not the permit should be issued.

VIII. PERIODIC TESTING

It is recognized that any backflow preventer can fail and any method of protection can be subverted. Therefore, periodic inspections, depending upon the degree of hazard, and, periodic testing of all testable backflow preventers are necessary.

- A. A Supplier approved tester shall perform the periodic testing of devices, and the results of the test shall be reported to the Supplier promptly. The cost of such testing shall be at the expense of the Owner.

- B. Any backflow preventer that fails during any test shall be repaired promptly and re-tested to assure that the device is operating correctly. Any delay of repair may require termination of service or some other means to ensure the protection of the public water system and the safety of the public health.
- C. If the backflow preventer fails a test and cannot be immediately repaired, service may be discontinued in accordance with section V: -A. -5 of this program.

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

IX. LIFE SAFETY SYSTEMS

If the Owner's domestic supply line is used for a life safety sprinkler system, a Supplier approved double check valve assembly must be installed.

X. COMMERCIAL AND INDUSTRIAL SERVICES

All commercial and industrial establishments that contain cross-connections deemed hazardous by the Supplier, shall have an approved backflow preventer installed on the service line immediately after the meter and before any branch line. The Supplier shall determine the type of device, based on the actual or potential degree of hazard.

XI. IRRIGATION SYSTEMS

Irrigation systems shall be allowed if protected by one of two Supplier approved backflow preventers.

- A. Pressure vacuum breaker (PVB) -- when protecting against backsiphonage only and when elevation allows for correct installation. (The PVB must always be installed a minimum of 12 inches above all down stream piping, the highest fixture flood level rim, outlet, or highest point of water use.)
- B. Reduced pressure principle backflow preventer (RP) -- when protecting against backpressure installations. (For example systems with pumps, feeders, or when elevation of the system does not allow for correct installation of a PVB.)