

## TOWN OF HOWLAND

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### CROSS-CONNECTION CONTROL PROGRAM

#### I. SUMMARY

This program is designed to prevent the contamination of drinking water by the backflow of water or other liquids, gases, mixtures, compounds or other substances into the distribution pipes of the Howland Water Department from a source or sources other than its intended sources.

#### II. AUTHORITY

This program gains its enforceability from Title 22, M.R.S.A., C-C01, sub-chapter 2, section 2612(5), Maine Department of Human Services Cross-Connection Rules number 10-144A CMR 238. In addition, authority arises from provisions in the Occupational Safety and Health Act, as well as from the Rules and Regulations as published by the Howland Water Department 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, 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 PREVENTER - a device or means to prevent backflow, sub-defined 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 Preventer w/intermediate atmospheric vent - a device having two check valves separated by an
  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 that 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 Principal 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 public water supply system.

- G. CONTAINMENT - a method of backflow prevention which requires a backflow preventer at the water service entrance.
- H. CROSS CONNECTION - any physical connection or arrangement between two otherwise separate piping systems, one of which contains potable water and the other water or other substances of unknown or questionable safety, whereby water or other substances may flow from one system to the other, the direction of flow depending on the pressure differential between the two systems.
- I. DEPARTMENT - State of Maine, Department of Human Services.
- J. FIXTURE ISOLATION- a method of backflow prevention in which a backflow preventer is located to prevent a 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 any other entity who has legal title to or license to operate or habitate any 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 which allows the use of a backflow preventer.
- 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, chemical, bacteriological and radiological quality conforms to the Maine Safe Drinking Water Act, or any 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 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.
- Q. SUPPLIER - The Howland Water Department.
- 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 approved pursuant to a permit specifically issued for that cross-connection.
- B. The Owner shall allow his property to be inspected for possible cross-connection and shall follow the provisions of this program or the Department's Rules and Regulations if a cross-connection is permitted.
- C. 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.
- D. Both the Supplier and the Owner shall attempt to eliminate all cross-connections.

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 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 connection(s), which will not be in excess of thirty (30) days. The availability of an approved backflow preventer will be considered, and a time extension may be allowed. At the end of the 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. 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 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 Owners premises shall be terminated in accordance with the Suppliers rules and regulations for non-payment.
5. If the Supplier determines at any time that a serious threat to the public health exists, service shall be terminated immediately.

6. 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 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 customers every two years and all commercial customers every five years.
8. The Supplier shall make sure that all new construction, including residential, complies with this program and with the Maine State Plumbing Code. A copy of the Plumbing Inspector's Certificate of Completion shall be obtained before water service is provided.
9. The Supplier shall inspect dwellings with more than two units and require that they comply with this program. Also, the Supplier shall inform the Owners of the dwelling with two or less units of potential hazards of cross-connections, giving examples of possible backflow situations. The Owner of any dwelling, residence, institution or business may be required to install a backflow preventer in accordance with this program if deemed necessary.
10. The Supplier shall be responsible for the administration of this program and for ensuring that periodic testiness of all backflow preventers are performed.

B. Owner's Responsibility

1. The Owner, after being informed by a letter from the Supplier, shall, at his expense, install, maintain, and ensure the testing of any backflow preventer deemed necessary on his premises.

2. The Owner shall correct any malfunction of the backflow preventer which 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.
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 Supplier's instructions.
4. Any Owner having a private water source must have a permit if the private source is cross-connected to the Suppliers system. Permission may be denied to cross-connect by the Supplier or the Department. The Owner of a private water source may be required to have a backflow preventer at the service entrance, even if the source is not cross-connected to the Suppliers system.
5. The Owner shall not install a by-pass around a backflow preventer unless there is a backflow preventer installed on the by-pass. Owners who cannot shut down for testing must provide additional backflow preventers to allow for the periodic testing of each device.
6. The Owner shall not install any backflow preventer not listed or approved by the Department.
7. The Owner shall install the backflow preventer 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.
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 preventer, said plumbing shall also have a backflow preventer.

VI. DEGREE OF HAZARD

Different types of cross-connections constitute different degrees of hazard which are classified as follows, listed with the approved type of devices:

- A. Class 1 - If 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 and have no significant health effect. Allowed devices are air gap, non-pressure type vacuum breaker, pressure type vacuum breaker, double check valve assembly, or reduced pressure principal device.
- B. Class 2 - If backflow were to occur, the resulting effect on the water supply would be significant changes in the esthetic qualities. The foreign substance must be non-toxic and non-bacterial in nature. Allowed devices are air gap, pressure type vacuum breaker, double check valve assembly, or reduced pressure principal device.
- C. 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. Allowed devices are air gap or reduced pressure principal device.

VII. PERMITS

- A. Permits will be issued by the Department upon recommendation of the Supplier for any backflow situation except those listed in Section VIII, Part C.
- 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 and any exemptions 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.

## VII. EXEMPTIONS

- A. Any cross-connection protected against backflow at the time this program becomes effective may continue with the same protection unless:
  - 1. The existing protection is deemed inadequate by the Supplier or the Department.
  - 2. The Department notifies the Supplier, in writing, that a change must be made.
- B. The exemption will expire at any time that the backflow preventer must be replaced. In such cases, the replacement backflow preventer must be of the type required by the degree of hazard.

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. Therefore:

- A. Periodic testing shall be performed by any one or combination of the following: the Supplier or by a person who has been certified for testing backflow devices by the New England Water Works Association. The cost of such testing shall be at the expense of the Owner.
- B. Any backflow preventer which fails during any test shall be immediately repaired. The Supplier shall require that the Owner order repair parts within twenty-four hours and that shipment be by the most expedient means possible. Any delay or repair for more than four 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 a Class 2 or Class 3 degree of hazard shall not be allowed to continue unprotected if the backflow preventer fails and cannot be immediately repaired.

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

X. RESIDENTIAL SERVICE

All new residential service connections shall have a State approved dual check backflow preventer installed on the service line before water service is turned on.

## XI. COMMERCIAL AND INDUSTRIAL SERVICES

All industrial establishments shall have a State approved reduced pressure principal backflow preventer (RPZ) installed on the service line, immediately after the meter and before the first branch line.

All commercial establishments shall have a State approved backflow preventer 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.

## XII. FIRE PROTECTION SERVICE LINES

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

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 above ground 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 approved double check valve assembly 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 anti-freeze or other industrial water systems shall have a State approved reduced pressure zone principal backflow preventer 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 renewals to an existing sprinkler service is made, then at that time a State approved inline testable backflow preventer shall be installed.

XIII. 13D AND LIFE SAFETY SYSTEMS

- A. If the customer's domestic supply line is used without a separate branch line for the sprinkler heads, then a State approved double check valve assembly shall be installed after the meter and before the first branch line.
- B. If a branch line is used to service the sprinkler heads only, and is dead ended, then a State approved double check valve assembly shall be installed on that branch line.

XIV. TYPE OF BACKFLOW PREVENTION REQUIRED

A State approved backflow prevention device of the type specified shall be installed on each domestic water service line to the following types of facilities. This list is a guideline and should not be construed as being complete.

<u>Type of Facility</u>	<u>Type of Protection</u>
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



