

February 2, 2004

**CROSS -CONNECTION CONTROL PROGRAM**  
**PENNICHUCK WATER WORKS, INC.**  
**PENNICHUCK EAST UTILITY, INC.**  
**PITTSFIELD AQUEDUCT COMPANY**

**Service Area:**

Pennichuck Water Works. Inc.:

City of Nashua, New Hampshire  
Town of Merrimack, New Hampshire, Limited Area,  
Town of Amherst, New Hampshire, Limited Area  
Town of Bedford, New Hampshire, Limited Area  
Town of Derry, New Hampshire, Limited Area  
Town of Milford, New Hampshire, Limited Area  
Town of Plaistow, New Hampshire, Limited Area  
Town of Epping, New Hampshire, Limited Area  
Town of Hollis, New Hampshire, Limited Area  
SEE Page 3 & 4 of Pennichuck Water Works Tariff for Limited Areas.

Pittsfield Aqueduct Company

Town of Pittsfield, NH

Pennichuck East Utility, Inc.:

Town of Amherst	Souhegan Woods
Town of Atkinson	Atkinson
Town of Derry	East Derry/Farmstead
	Maple Hills
Town of Hooksett	Smythe Woods
Town of Litchfield	Litchfield
	Sawmill
Town of Londonderry	Avery
	Brook Park
	Cohas Landing
	Harvest
	Londonderry/Birchville
	Ministerial
	Nesenkeag
	Pine Haven
	R & B
	Springwood

Town of Pelham                      Gage Hill  
   Northern Pelham  
   Williamsburg/Stonegate

Town of Raymond                      Rolling Hills  
   Liberty Tree  
Town of Sandown                      Beaver Hollow  
Town of Windham                      Goldenbrook/Shadybrook  
   Hardwood  
   Oakwood  
   W & E

Purpose:

Cross-Connection between water supplies and non-potable sources of contamination represents one of the most significant threats to health in the water supply industry. This program is therefore designed to maintain public safety by preventing the introduction of any substances other than potable water from the intended source.

Authority:

- A. New Hampshire Department of Environmental Services (NHDES) Water Supply Engineering Bureau, Code of Administrative Rules Part, WS 364, Backflow Prevention.
- B. Pennichuck Water Works, Inc., Pennichuck East Utility, Inc., Pittsfield Aqueduct, Inc., Rules and Regulations for Water Service (Tariff) as approved by the New Hampshire Public Utilities Commission (NHPUC).

Definitions:

- A. Backflow - the flow of water, foreign liquids, gases or other substances into the distribution system of a public water supply from any source other than the intended source.
- B. Backflow Preventer - a device to prevent backflow.
  - 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 sub-atmospheric pressure in a water system.

3. Backflow Preventer with Intermediate Atmospheric Vent - A device having two check valves separated by an atmospheric vent.
  4. Double Check Valve - A device having two spring loaded, bronze faced with rubber disc check valves, with shut-off valves and test cocks for periodic testing.
  5. Hose Bib Vacuum Breaker - A device which is permanently attached to a hose bill 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 pressure approaches atmospheric. It contains valves and fittings which allow the device to be tested.
  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 the failure of the valves. It has valves and fittings which allow the device to be tested.
- C. Back-Siphonage - Backflow resulting from negative or less than atmospheric pressure in the water system.
- D. Back-Pressure - Pressure created by mechanical means or other means causing water, liquids or other substances to flow or move in a direction opposite to the direction intended.
- E. Containment - A method of backflow prevention which requires a backflow preventer at the water service entrance.
- F. Cross-Connection - The words “cross-connection” shall mean any actual or potential physical connection or arrangement between two to 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 an unapproved source to a water supply.
- G. Division - State of New Hampshire Department of Environmental Services (“NHDES”), Water Division, Water Supply Engineering Bureau.
- H. Fixture Isolation - A method of backflow prevention in which a backflow preventer is located to correct a cross-connection at an in-plant unit rather than at the water service entrance.

- I. Owner - Any person who has legal title to, or license to operate in or inhabit, a property upon which a cross-connection inspection is to be made or upon which a cross-connection is present.
- J. Permit - A document issued by the supplier which requires the use of a backflow preventer as described in this Cross-Connection Control Program.
- K. Person - Any individual, partnership, company, public or private corporation, political subdivision or an agency of the State, department, agency or instrumentality of the United States or any other legal entity.
- L. Supplier - Pennichuck Water Works, Inc., Pennichuck East Utility, Inc., Pittsfield Aqueduct.
- M. Water Service Entrance - That point in the Owner's system beyond the sanitary control of the supplier. This will ordinarily be the outlet end of the meter and will always be before any unprotected branch.

Administration:

- A. The Supplier will operate a Cross-Connection Control Program, including keeping necessary records which fulfills the requirements of the Division's Cross-Connection Regulations and is approved by the Division.
- B. The Owner shall allow his/her property to be inspected for possible cross-connections and shall follow the provisions of the supplier's program and the Division's Regulations if a cross-connection is permitted.
- C. The Owner shall be responsible for alterations of water quality beyond the outlet end of the containment device which is not resulting from corrosion of piping and plumbing caused by water quality, and can utilize fixture isolation for that purpose.
- D. Both the Supplier and the Owner shall attempt to eliminate all cross-connections.

Responsibility

- A. Supplier's Responsibility:
  - 1. On new or renewed water services, the Supplier will: 1) provide a backflow preventer application to the Owner to be completed by the Owner; 2) perform on site evaluation and inspection and/or plan review to determine backflow preventer required; 3) issue backflow preventer permit; 4) perform installation inspection and testing on those devices required herein.

2. For premises existing prior to the start of this program, the Supplier will perform evaluations and inspections of plans and premises, inform the Owner by letter of any correction deemed necessary, the method of making the correction and the time allowed for the correction to be made.
3. The Supplier will not allow any cross-connections to remain unless it is protected by an approved backflow preventer which is regularly tested and operates satisfactorily.
4. The Supplier shall inform the Owner by letter of any failure to comply by the time of the first re-inspection. The Supplier will determine the time allowed to make the correction. If there is a failure to comply with the needed correction by the time of the second re-inspection, the Supplier shall inform the Owner, by letter, that the water service to the Owner's premises will be terminated. A copy of this letter will be forwarded to the appropriate municipal health department and the Public Utilities Commission of the State of New Hampshire. Failure to comply will result in termination of service.
5. If the Supplier determines at any time that a serious threat to the public health exists, service will be terminated immediately.
6. The Supplier shall begin initial premise inspections to determine the nature of existing hazards and corrections to be made, following approval of this program by the Division. Initial focus shall be concentrated on industrial and high hazard premises. The Supplier shall eventually inspect each industrial, commercial, or governmental premise. The Supplier shall re-inspect each premise at the time of Permit renewal or every five years.
7. The Supplier shall have on its staff a person(s) who is a certified backflow prevention device tester and a person who is responsible for the implementation of this program.

B. Owner:

1. The Owner shall be responsible for the elimination of or protection from all cross-connections on his/her premises. The Owner shall have the responsibilities as contained in New Hampshire Code of Administrative Rules part, WS 364.04.
2. The Owner, after being informed by a letter from the Supplier, shall at his/her expense install, maintain and have tested, any backflow preventer

as herein required on his/her premises. The backflow preventer shall be located at the water service entrance except in cases where the supplier requires the device to be located elsewhere.

3. The Owner shall correct to the satisfaction of the supplier and at his/her own expense, any malfunction of the backflow preventer which is revealed by periodic testing. This shall include the replacement of parts or the replacement of the backflow preventer if deemed necessary by the Supplier.
4. The Owner shall inform the Supplier of any new proposed or modified cross-connection and also any existing cross-connection of which the Owner is aware but has not been found by the Supplier.
5. Any Owner having a private well or other private water source must have a permit if the well or source is cross-connected to the Supplier's system, and permission to cross-connect may be denied by the Supplier. The Owner may be required to install a backflow preventer at the service entrance if a private water source is maintained, even if it is not cross-connected to the Supplier's system.
6. The Owner shall not install a by-pass around any backflow preventer unless there is a backflow preventer on the by-pass. Owners who cannot shut down operation for testing, must install tandem backflow preventers to allow testing to take place.
7. The Owner shall only install backflow preventers listed or approved by the Supplier and the Division.
8. The Owner shall install the backflow preventer in a manner approved by the Supplier.
9. The Owner shall be responsible for the payment of all fees for Permit(s), annual or semi-annual device testing, fees for testing in the case of a device failing to operate correctly, additional re-inspections for non-compliance with Supplier or Division rules and regulations, and any costs associated with repair or replacement.
10. In accordance with Division regulations, the Owner must "Maintain a spare parts kit and any special tools required for the removal and reassembly of the backflow prevention device." (Ref. NH Code of Administrative Codes, Part WS 364.04 (e) (7))

11. The Owner is responsible for the provision and proper installation of a safety pressure relief valve on hot water pressurized systems within the Owner's plumbing system.

Degree of Hazard:

The supplier recognizes the differences in the threat to the public water system arising from different types of cross-connections. These are classified as follows:

A. Low Degree of Hazard:

If backflow were to occur, the resulting effect on the water supply would be a change in its esthetic qualities. Foreign substances in the backflow must be non-toxic to humans.

B. High Degree of Hazard:

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

Permits:

- A. The Supplier shall not issue a permit for a cross-connection within the public water supply system unless it is deemed necessary and cannot be eliminated.
- B. A cross-connection permit is required for each backflow prevention device that is required by the Supplier under this Cross-Connection Control Program and is secured from the Supplier. There is no fee for an initial permit. (A fee is established for the renewal of a permit.)
- C. The permit shall contain the information required in WS 364.05, (b), (3).
- D. Permits shall be renewed every five years and are non-transferable. Permits are subject to revocation for cause by the Supplier and become immediately revoked if the Owner should change the type of cross-connection or degree of hazard with the service.
- E. A permit is not required for backflow prevention devices installed by the owner in locations other than that required by the supplier as specified herein. This does not preclude the requirement for a permitted backflow prevention device at the water service entrance for the purpose of containment.

Existing In-Use Backflow Prevention Devices:

Any existing backflow preventer shall be allowed by the Supplier to continue in service unless the degree of hazard is such as to supersede the effectiveness of the present backflow preventer, or result in an unreasonable risk to the public health.

Periodic Testing:

- A. Backflow prevention devices as required herein shall be inspected and tested at least semi-annually in high hazard situations and annually in low hazard situations.
- B. Periodic testing shall be performed by the Supplier's certified inspector.
- C. The testing shall be accomplished during the Supplier's regular business hours. Exceptions to this, when at the request of the Owner, may require additional charges to cover increased costs to the Supplier.
- D. Any backflow preventer which fails during a periodic test will be repaired or replaced. Certain high hazard situations will not be allowed to continue unprotected if the backflow preventer fails the test and cannot be repaired immediately. Upon failure of a backflow preventer in a high hazard situation, repair or replacement of the device shall be completed within 10 calendar days of written notification by the Supplier; in low hazard situations the length of time allowed for device repair or replacement will be 30 calendar days from the date of written notification from the Supplier. Parallel installation of two devices is an effective means of the Owner insuring uninterrupted water service during testing or repair of devices and is recommended when the Owner desires such continuity.

Records and Reports:

- A. The Supplier shall maintain the following records:
  - 1. Master files on customer inspections.
  - 2. Master files on cross-connections permits.
  - 3. Copies of permits and permit applications.
  - 4. Copies of lists and summaries supplied to the Division.
- B. The Supplier shall submit the following reports to the Division:
  - 1. Initial lists to Division (formerly, Water Supply and Pollution Control Commission) (Forms X-1 (H) & X-a (L) by February 1, 1984.

2. Annual update lists thereafter to Division by February 1, of the following year.
3. Annual summary of inspections to Division by February 1, of the following year utilizing Form X-2.