

Hillsborough Water & Sewer Commission

Cross-Connection Control Program

I. Purpose

Cross-Connections between water supplies and non-portable sources of contamination are significant threats to health in the water supply industry. This ordinance is designed to maintain the safety and potability of the water in the Hillsborough Public Water System by establishing rules and procedures to prevent the contamination of public drinking water by the backflow of water from an approved source or other fluids.

A. The purpose of this regulation is:

1. To protect the public water supply of the Hillsborough Public Water System from the possibility of contamination by isolating contaminants which could backflow or back-siphon into the public water system within its customers' internal distribution system(s);
2. To promote the elimination or control of cross-connections, actual or potential, between its customers' in-plant drinking water system(s) and anything that could contaminate or pollute it; and
3. To provide for the maintenance of a cross-connection control program to effectively prevent the contamination or pollution of all drinking water systems.

This document is intended to supplement the rules listed in section II below. Changes to this document in the future must be approved by the New Hampshire Department of Environmental Services (NHDES).

II. Authority

- A. New Hampshire Administrative Rule Env-Ws 364, or subsequent rules, *Backflow Prevention*.
- B. The Hillsborough Water & Sewer Commission rules and regulations.

III. Requirements

The Hillsborough Water & Sewer Commission shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow or back-siphonage of contaminants or pollution through the water service connection. If, in the judgment of the Commission, an approved backflow prevention device is required at the Town's water service connection to any customer's premises for the safety of the water system, the Commission or their designated agent shall give notice, in writing, to said customer to install an approved backflow prevention device at each service connection to his premises. The customer shall, within 90 days, install approved device or devices at his own expense. Failure, refusal, or inability on the part of the customer to install said device or devices within 90 days shall constitute grounds for discontinuing water service to the premises until such device or devices have been properly installed.

IV. Definitions

- A.** Auxiliary Water Supply – Any water supply on or available to the premises other than the purveyor's approved public potable water supply.
- B.** Backflow – The flow of water or other fluids, mixtures or substances into the distribution pipes of a potable water system from any source other than the intended approved source of supply.
- C.** Backflow Preventer – A device or means designed to prevent backflow or back-siphonage.
 - 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. Physically defined as a vertical distance equal to twice the diameter of the supply pipe but not less than one inch.
 - 2.** Atmospheric Vacuum Breaker – A device which prevents back-siphonage by creating an atmospheric vent when there is either a negative pressure or sub-atmospheric pressure in a water system.
 - 3.** Barometric Loop – A fabricated piping arrangement rising at least 35 feet at its topmost point above the highest fixture it supplies. It is utilized in water systems to protect against back-siphonage.
 - 4.** Double Check Valve Assembly – An assembly of two independently operating spring-loaded check valves with tightly closing shut-off valves on each side of the double check valve, plus properly located test cocks for the testing of each check valve.
 - 5.** Dual Check Valve with Intermediate Atmospheric Vent – A device having two independently operating spring-loaded check valves separated by an atmospheric vent chamber.
 - 6.** Hose Bib Vacuum Breaker – A device which is connected to a hose bib and which acts as an atmospheric vacuum breaker. Not to be used under constant pressure.
 - 7.** Pressure Vacuum Breaker – A device containing one or two independently operated spring-loaded check valves and an independently operated spring-loaded air inlet valve located on the discharge side of the check valve(s). The device includes tightly closing shut-off valves on each side of the check valve(s) and properly located test cocks for the testing of the assembly.
 - 8.** Reduced Pressure Principle Backflow Preventer – An assembly consisting of two independently operating spring loaded check valves with an automatically operating differential relief valve located between the two check valves, tightly closing shut-off valves on each side of the check valves plus properly located test cocks for the testing of the check valves and the relief valve.
 - 9.** Residential Dual Check – An assembly of two spring loaded independently operating check valves. Generally employed immediately downstream of the water meter to act as a containment device in a single- or two-family residence.

- D.** Backpressure – A condition in which the owner's system pressure is greater than the supplier's system pressure.
- E.** Back-Siphonage – The flow of water or other fluids, mixtures or substances into the distribution pipes of a potable water system from any source other than its intended source caused by the sudden reduction of pressure in the public water system.
- F.** Containment – A method of backflow prevention which requires a backflow prevention device at the water service entrance.
- G.** Contaminant – A substance that may impair the quality of the water creating a potential health hazard to the public.
- H.** Cross-Connection – Any actual or potential connection between the public water system and any source of contamination or unapproved water source.
- I.** Fixture Isolation – A method of backflow prevention in which a backflow preventer, such as a hose bib or an atmospheric vacuum breaker, is located to correct a cross-connection at an in-plant location rather than at a water service entrance. This protects the drinking water in the building.
- J.** Owner – Any person who has legal title to, or license to operate or habitat in, a property upon which a cross-connection inspection is to be made or upon which a cross-connection may be present.
- K.** Person – Any individual, partnership, company, public or private corporation, political subdivision or agency of the state, department, agency or instrumentality of the United States, or any other legal entity.
- L.** Water Service Entrance – That point in the owner's water system beyond the sanitary control of the water supplier; generally considered to be the outlet end of the water meter or where the water service first enters the building.
- M.** Water Operator – The Operator, or his delegated representative, in charge of the Hillsborough Public Water System who is invested by the Hillsborough Water & Sewer Commission 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.
- N.** Water Supplier – The public water supply system.

V. Administration

- A.** The Hillsborough Water & Sewer Commission will operate an approved cross-connection control ordinance, including the keeping of necessary records to fulfill the requirements of NHDES's Backflow Rules, Regulations, and related laws.
- B.** The owner shall allow the Hillsborough Water & Sewer Commission, or their designee, to inspect his property for possible cross-connections and shall follow the provisions of the Hillsborough Water & Sewer Commission ordinance and their rules.

- C.** If the Hillsborough Water & Sewer Commission requires that the public supply be protected by containment, the owner shall be responsible for the water quality beyond the outlet end of the containment device and should utilize the appropriate device approved for that purpose.

VI. Responsibilities

A. Hillsborough Water & Sewer Commission

- 1.** On new installations, the Hillsborough Water & Sewer Commission, or their designee, will provide an on-site evaluation and/or inspection and review of plans in order to determine the type of backflow preventer, if any, that will be required.
- 2.** On new installations, the Hillsborough Water & Sewer Commission will issue a permit their designee will perform inspection and testing.
- 3.** For premises existing prior to the start of this program, the Hillsborough Water & Sewer Commission, or their designee, will:
 - a.** Perform an assessment of the function of the premise and determine if it poses a cross-connection risk. If a risk is present, assess the risk as high hazard or low hazard.
 - b.** Inform the owner in writing of any corrective action deemed necessary, the method of achieving the correction, and the time allowed for the correction to be made. Ordinarily, 30 days will be allowed. However, this time period may be shortened depending upon the degree of hazard involved and the history of the device(s) in question.
- 4.** The Hillsborough Water & Sewer Commission will not allow any cross-connection to remain unless it is isolated by an approved backflow prevention assembly, commensurate with the degree of hazard, for which a permit has been issued and which will be regularly inspected/tested to ensure satisfactory operation.
- 5.** The Hillsborough Water & Sewer Commission shall inform the owner in writing of any failure to comply and the time allowed for the correction to be made. If upon re-inspection the owner has not complied, the Hillsborough Water & Sewer Commission may allow an additional 15 days for the correction. In the event the owner fails to comply with the necessary correction by the time of the second re-inspection, the Hillsborough Water & Sewer Commission will inform the owner, by certified letter, that the water service to the owner's premises will be terminated within a period not to exceed five days. In the event that the owner informs the Hillsborough Water & Sewer Commission of extenuating circumstances as to why the correction has not been made, a time extension may be granted by the Commission.
- 6.** If the Hillsborough Water & Sewer Commission determines at any time that a serious threat to public health exists, the water service shall be terminated immediately.

7. The Hillsborough Water & Sewer Commission shall begin inspections to determine the nature of existing hazards and corrections to be made, following approval of the program by NHDES. Initial focus will be on high hazard water use.
8. Certified backflow prevention device inspectors must be certified through the NEWWA Certified Backflow Prevention Device Inspectors/Testers Program.

B. Owner

1. The owner shall be responsible for the elimination or isolation with the proper installation of an approved backflow preventer commensurate with the degree of hazard, for all cross-connections on his premises. The Owner shall have the responsibilities as contained in New Hampshire Code of Administrative Rules, part WS 364.04 or subsequent rule.
2. The Owner, after being informed by a letter from the Hillsborough Water & Sewer Commission, 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 any deficiency of a backflow preventer which is revealed by inspection or testing. This shall include the replacement of parts or the replacement of the backflow preventer, if deemed necessary by the Hillsborough Water & Sewer Commission.
4. The owner shall inform the Hillsborough Water & Sewer Commission of any proposed or modified cross-connections and also existing cross-connections of which the owner is aware but has not been found by the Hillsborough Water & Sewer Commission.
5. The owner shall not install a by-pass around any backflow preventer unless there is a backflow preventer of the same type on the by-pass. Owners who cannot shut down operations for inspecting of the device(s) must supply additional devices necessary to allow inspecting to take place.
6. The owner shall install backflow preventers in a manner and location approved by the Hillsborough Water & Sewer Commission.
7. The owner shall only install approved backflow preventers from a list adopted by the Hillsborough Water & Sewer Commission and NHDES.
8. Any owner having a private well or other private water source must:
 - a. Have a permit if the well or source is cross-connected to the Hillsborough Public Water System's system. Permission to cross-connect may be denied by the Hillsborough Public Water System.
 - b. 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 Hillsborough Water & Sewer Commission's system.

9. The owner shall be responsible for the payment of all fees for permits, annual or semi-annual device inspections, re-testing in the case that the device fails to operate correctly, and re-inspections for non-compliance with the Hillsborough Water & Sewer Commission or NHDES requirements.

VII. Degree of Hazard

The Hillsborough Public Water System recognizes the threat to the public water system arising from cross-connections. All threats will be classified by degree of hazard and will require the installation of approved backflow prevention devices for high and low hazards.

A. Low Degree of Hazard

If backflow were to occur, the resulting effect on the water supply would be a change in its aesthetic qualities. The foreign substance must be non-toxic to human.

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. The foreign substance may be toxic to humans from either a chemical, bacteriological or radiological standpoint. The effects of the contaminants may result from short- or long-term exposure.

The following types of backflow prevention devices may be used for the containment of on-site contaminants for high and low hazard situations respectively:

C. High Hazard:

1. Air gap (AG)
2. Reduced pressure principal backflow preventer (RPZ)
3. Combination of the above

D. Low Hazard:

1. Air gap (AG)
2. Pressure vacuum breaker (PVB)
3. Double check valve assembly (DCVA)
4. Reduced pressure principal backflow preventer (RPZ)
5. Combination of the above

VIII. Permits

The Hillsborough Water & Sewer Commission shall not permit a cross-connection within the public water system unless it is considered necessary and cannot be eliminated.

- A. Cross-connection permits that are required for each backflow prevention device are obtained from the Hillsborough Water & Sewer Commission. The Hillsborough Water &

Sewer Commission will determine and set a fee for the initial permit and for the renewal of each permit.

- B.** Cross-connection permits shall be renewed every five years and are non-transferable. Permits are subject to revocation and become immediately revoked if the owner should so change the type of cross-connection or degree of hazard associated with the service type of device, replacement of device with a new device, or change of ownership
- C.** A permit is not required when fixture isolation is achieved with the utilization of a non-testable backflow preventer in the case of residential dual checks if the Hillsborough Water & Sewer Commission determines that is the appropriate level of protection for the hazard.

IX. Existing in-use Backflow Devices

Any existing backflow preventer shall be allowed by the Hillsborough Public Water System to continue in service unless the degree of hazard is such as to supercede the effectiveness of the present backflow preventer, or unless an unreasonable risk to the public health results.

X. Periodic Testing

- A.** Backflow prevention devices shall be inspected and tested at least semi-annually for high hazard situations and annually for low hazard situations.
- B.** Periodic inspections and testing shall be performed by an inspector designated by the Hillsborough Water & Sewer Commission and certified through the NEWWA Backflow Prevention Device Inspectors/Testers Program. The inspections will be done at the owner's expense.
- C.** When performed by an inspector designated by the Hillsborough Water & Sewer Commission, the inspections shall be conducted during the Hillsborough Water & Sewer Commission's regular business hours. Exceptions to this, when at the request of the owner, may require additional charges to cover the increased costs to the Hillsborough Water & Sewer Commission.
- D.** Any backflow preventer which fails the inspection test during a periodic inspection will be repaired or replaced. When repairs are necessary, upon completion of the repair the device will be inspected a second time at the owner's expense to ensure correct operation. High hazard situations will not be allowed to continue unprotected, if the backflow preventer fails the inspection and cannot be repaired immediately. In other situations, a compliance date of not more than 30 days after the inspection date will be established. The owner is responsible for spare parts, repair tools, and/or a replacement device. Parallel installation of two devices is an effective means of the owner ensuring that uninterrupted water service is provided during inspections or repair of devices and is strongly recommended when the owner desires such continuity.
- E.** Backflow devices shall be repaired or replaced by the Owner, at the expense of the Owner, whenever said devices are found to be defective. Tests and repairs shall be recorded on forms approved by the Hillsborough Water & Sewer Commission, and copies shall be distributed to the owner and water superintendent within 30 days of the actual test.

- F.** Backflow prevention devices may be inspected more frequently than specified in section A above; in cases where there is a history of test failures and the Hillsborough Water & Sewer Commission feels that due to the degree of hazard involved, additional inspections are warranted. Cost of the additional inspections will be borne by the owner.

XI. Records and Reports

- A. Records** – The Hillsborough Public Water System will initiate and maintain the following for a minimum of five years:
1. Master files on customer cross-connection inspections and/or tests.
 2. Master files on cross-connection permits.
 3. Copies of permits and permit applications.
- B. Reports** – Each year, by April 1, the Hillsborough Public Water System will submit a summary of inspection results to NHDES that includes the following:
1. The name, certifying organization, and certification number of the certified backflow prevention device inspector who performed the inspection and test on the device;
 2. The permit number;
 3. The name of the owner and the location of the device;
 4. The purpose of the device and its hazard class;
 5. The type of device;
 6. The date and result of each test; and
 7. If the test failed, the subsequent test date and result until the device passes.

XII. Fees and Charges

The Hillsborough Public Water System will publish a list of fees or charges for the following:

- A. Fees**
1. Survey Inspection fees (new buildings and new businesses) – \$125 to be paid by Hillsborough Water & Sewer Commission
 2. Fees for Backflow Preventer permits (to be completed prior to a Certificate of Occupancy being issued) and renewal of permits (every 5 years) - \$100 to be paid by owner
 3. Fees for testing - \$60 per test to be paid by owner
- B. Charges**

1. Charges for afterhours survey inspections - Paid by Hillsborough Water & Sewer Commission