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DEPARTMENT OF PUBLIC WORKS  
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## BACKFLOW AND CROSS CONNECTION REGULATIONS

ADOPTED BY THE HUDSON BOARD OF SELECTMEN OCTOBER 23, 1989

### CROSS CONNECTION CONTROL AUTHORITY

Under Public Law 93-523, the Safe Drinking Water Act of 1974, and Massachusetts Reg. 310 CMR, Section 22.22. Protection of Sources of Water, the water purveyor has the primary responsibility for preventing water from the unapproved sources, or any other substances, from entering the public potable water system.

### SECTION 1 CROSS CONNECTION CONTROL – GENERAL POLICY

#### 1.1 PURPOSE

- 1.1.1 The purpose of this regulation is: To protect the public water supply of the area served by the Town of Hudson Department of Public Works from possibility of contamination or pollution by isolating within its customer's internal distribution system(s) or its customer's private water system(s) such contaminants or pollutants which could backflow or back-siphon into the public water supply system; and
- 1.1.2 To promote the elimination or control of existing cross connections, between its customer's in-plant potable water system(s) and non-potable systems, plumbing fixtures and industrial piping systems; and
- 1.1.3 To provide for the maintenance of a continuing program of cross connection control which will systematically and effectively prevent the contamination or pollution of all potable water systems by cross connections.

#### 1.2 RESPONSIBILITY

The Director of the Department of Public Works 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 pollutants through the water service connection. If, in the judgement of said Director, 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 Director or his designated agent shall give notice in writing to said customer to install such an approved back flow prevention device at each service connection to his premises. The customer shall, within 30 days, install such approved device or devices. The customer shall, within 30 days, install such approved device or devices at his own expense and failure, refusal or inability on the part of the customer to install said device or devices, within 30 days, shall constitute a ground for disconnecting water service to the premises until such device or devices have been properly installed.

In the event that an extension of time is required to plan and install the devices, the customer shall request in writing, an extension. The Director may decide to allow the extension of time.

### SECTION 2 – DEFINITIONS

- 2.1 DIRECTOR – The Director, or his designated agent, is vested 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.
- 2.2 APPROVED – Accepted by the Director as meeting an applicable specification stated or cited in this regulation, or as suitable for the proposed use.
- 2.3 AUXILIARY WATER SUPPLY – Any water supply on or available to the premises other than the purveyor's approved public potable water supply.

- 2.4 BACKFLOW – The flow of water or other liquids, mixtures or substances under pressure into the distributing pipes of a potable water supply system from any source or sources other than its intended source.
- 2.5 BACK-SIPHONAGE – The flow of water or other liquids, mixtures or substances into the distributing pipes of a potable water supply system from any source or sources other than its intended source caused by the sudden reduction of pressure in the potable water supply system.
- 2.6 BACKFLOW PREVENTER – A device or means designed to prevent backflow or siphonage.
  - 2.6.1 Air-Gap – The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the flood rim of said vessel. An approved air-gap shall be required by Water Department standards.
  - 2.6.2 Reduced Pressure Principle Device – An assembly of two independently operating approved check valves with an automatically operating differential relief valve between the two check valves on either side of the check valves, plus properly located test cocks for the testing of the check and relief valves.
  - 2.6.3 Double Check Valve Assembly – An assembly of two independently operating approved check valves with tightly closing shut-off valves on each side of the check valves, plus properly located test cocks for the testing of each check valve.
  - 2.6.4 Pressure Vacuum Breaker – A device containing one or two independently operating loaded air inlet valve located on the discharge side of the check of checks.
- 2.7 CONTAMINATION – Means an impairment of the quality of the potable water or sewage, industrial fluids or waste liquids, compounds or other materials to a degree which creates an actual hazard to the public health through poisoning or through the spread of disease.
- 2.8 CROSS CONNECTION – Any physical connection or arrangement of piping or fixtures between two otherwise separate piping systems one of which contains potable water and other non-potable water or industrial fluids of questionable safety, through which, or because of which, backflow or back-siphonage may occur into the potable water system.
- 2.9 CROSS CONNECTION – CONTROLLED – A connection between a potable water system and a non-potable water system with an approved back flow prevention device properly installed that will continuously afford the protection commensurate with the degree of hazard.
- 2.10 CROSS CONNECTION CONTROL BY CONTAINMENT – The installation of any approved backflow prevention device at the water service connection to any customer's premises or the installation of an approved backflow prevention device on the service line leading to and supplying a portion of a customer's water system where there are actual or potential cross connections which cannot be effectively eliminated or controlled at the point of cross connection.
- 2.11 HAZARD, DEGREE OF – The term is derived from an evaluation of the potential risk to public health and the adverse effect of the hazard upon the potable water system.
  - 2.11.1 Hazard – Health (High Hazard) – Any conditions, device, or practice in the water supply system and its operation which could create, or, in the judgement of the Director, may create a danger to the health and well being of the water consumer.
  - 2.11.2 Hazard – Plumbing (High-Hazard) – A plumbing type cross connection in a consumer's potable water system that has not been properly protected by a vacuum breaker, air-gap separation or backflow prevention device. Unprotected plumbing type cross connections are considered to be a health hazard.
  - 2.11.3 Hazard – Pollutinal (Low Hazard) – An actual or potential threat to the physical properties of the water system or to the potability of the public or the consumer's potable water system but, which would constitute a nuisance or be aesthetically objectionable or could cause damage to the system or its appurtenances, but, would not be dangerous to health.
- 2.12 INDUSTRIAL FLUIDS SYSTEM – Any system containing a fluid or solution which may be chemically, biologically, or otherwise contaminated or polluted in a form or concentration such as would constitute a health, system, or pollutinal or plumbing hazard if introduced into an approved water supply.
- 2.13 POLLUTION – Means the presence of any foreign substance (organic, inorganic, or biological) in water which tends to degrade its quality so as to constitute a hazard to impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic use.

- 2.14 WATER – POTABLE – Water from a source, which has been approved by the Mass. Water Supply and Pollution Control Commission for human consumption.
- 2.15 NON-POTABLE - Water, which is not safe, for human consumption or which is of questionable potability.
- 2.16 WATER SERVICE CONNECTION – The terminal end of a service connection from the public potable water system, i.e.: Where the water purveyor loses jurisdiction and sanitary control over the water at its point of delivery to the customer's water system. If a meter is installed at the end of the service connection, then the service connection shall mean the down stream end of the meter. Service connection shall also include water service connection from a fire hydrant and all temporary or emergency water service connections from the public potable water system.
- 2.17 WATER-USED – Any water supplied by a water purveyor from a public potable water system to a consumer's water system after it has passed through the point of delivery and is no longer under the sanitary control of the water purveyor.

### SECTION 3 REQUIREMENTS

#### 3.1 WATER SYSTEM

- 3.1.1 The water system shall be considered as made up of two parts: The utility system and customer system.
- 3.1.2 Utility system shall consist of the source facilities and the distribution system; and shall include all those facilities of the water system under the complete control of the utility, up to the point where the customer's system begins.
- 3.1.3 The source shall include all components of the facilities utilized in the production, treatment, storage and delivery of water to the distribution system.
- 3.1.4 The distribution system shall include the network of conduits used for the delivery of water from the source to the customer's system.
- 3.1.5 The customer's system shall include those parts of the facilities beyond which are utilized in conveying utility delivered domestic water to points of use.

#### 3.2 POLICY

- 3.2.1 No water service connection to any premises shall be installed or maintained by the Town of Hudson Department of Public Works unless the water supply is protected as required by Massachusetts State law and this regulation. Service of water to any premises shall be discontinued by the Director if a backflow prevention device required by this regulation is not installed, tested and maintained, or if it is found that a back flow prevention device has been removed, by-passed, or if an unprotected cross connection exists on the premises. Service will not be restored until such conditions of defects are corrected.
- 3.2.2 The customer's system should be opened for inspection at all reasonable times to authorized representatives of the Water Department to determine whether cross connections or other structural or sanitary hazards, including violations of this regulation exist. When such a condition becomes known, the Director shall deny or immediately discontinue service to the premises by providing for a physical break in the service line until the customer has corrected the condition(s) in conformance with all State statutes and Town by-laws relating to plumbing water supplies and the regulations adopted pursuant thereto. All expenses relating to the disconnection and reconnection shall be at the customer's expense.
- 3.2.3 An approved backflow prevention device where required shall be installed on each service line to a customer's water system at or near the property line or immediately inside the building being served; but, in all cases, before the first branch line leading off their service line wherever the following conditions exist.
  - 3.2.3a In the case of premises having an auxiliary water supply which is not or may not be safe bacteriological or chemical quality and which is not acceptable as an additional source by the Town of Hudson water supply, the public water system shall be protected against backflow from the premises by installing a backflow prevention device in the service line appropriate to the degree of hazard.
  - 3.2.3b In the case of premises on which any industrial fluids or any other objectionable substance is handled in such a fashion as to create an actual or potential hazard to the public water system, the public water system shall be protected against backflow from the premises by installing a backflow prevention device in the service line appropriate to the hazard.

- 3.2.3.c In the case of premises having (1) internal cross connection that cannot be permanently corrected and controlled, or (2) intricate plumbing and piping arrangements or where entry to all portions of the premises is not readily accessible for inspection purposes, making it impracticable or impossible to ascertain whether or not dangerous cross connections exist, the public water system shall be protected against backflow from the premises by installing a backflow prevention device in the service line.
- 3.2.4 The type of protective device required under subsection 3.2.3a, b and c shall depend upon the degree of hazard which exists as follows:
- 3.2.4a In the case of any premises where there is an auxiliary water supply as stated in subsection 3.2.3a of this section; or
- 3.2.4b Where there is any material dangerous to health which is handled in a fashion as to create an actual or potential hazard to the public water system; or
- 3.2.4c Where there are "uncontrolled" cross connections, either actual or potential, the public water system shall be protected by an approved air-gap separation or an approved reduced pressure principal backflow prevention device at the service connector.
- 3.2.4d In the case of any premises where there is water or substance that would be objectionable but not hazardous to health, if introduced into the public water system, an approved double check valve assembly shall protect the public water system.
- 3.2.4e In the case of any premises where, because of security requirements or other prohibitions or restrictions it is impossible or impractical to make a complete implant cross connection survey, the public water system shall be protected against backflow or back siphonage from the premises by the installation of a backflow prevention device in the service line. In this case, maximum protection will be required; that is, an approved air-gap separation or an approved reduced pressure principal backflow prevention device shall be installed in each service to the premises.
- 3.2.5 Any backflow prevention device required herein shall be of a model and size approved by the Department of Public Works. The term "approved backflow prevention" shall mean a device that is on the D.E.P. "approved list of backflow preventers and double check valves". The Department of Public Works has adopted said approval lists.
- 3.2.6 It shall be the duty of the customer/user at any premise where backflow prevention devices are installed to have certified inspections and operational test made at least once per year as required under Mass. Regulations and this regulation. The Department of Public Works will conduct testing on these devices twice a year. The owner of these devices will be charged for these tests. The Department of Public Works may have these tests performed by a designated representative. In those instances where the Director deems the hazard to be great enough he may require certified inspections at more frequent intervals. These inspections and tests shall be at the expense of the water user and shall be performed by Department of Public Works personnel or by a certified tester approved by the Department of Public Works and the State of Massachusetts. It shall be the duty of the Department of Public Works shall notify the customer/user in advance when the test are to be undertaken so that he or his representative may witness the test if so desired. These devices shall be repaired, overhauled or replaced at the expense of the customer/user whenever said devices are found to be defective. The Department of Public Works shall keep records of such tests.
- 3.2.7 All presently installed backflow prevention devices which do not meet the requirements of this section, but, were approved devices for the purposes described herein at the time of installation and which have been properly maintained, shall, except for the inspection and maintenance requirements under subsection 3.2.6, be excluded from the requirements of these rules so long as the Director is assured that they will satisfactorily protect the utility system. Whenever the existing maintenance or when the Department of Public Works finds that the frequency of maintenance constitutes a hazard to the public health, the unit shall be replaced by a backflow prevention device meeting the requirements of this section.

## SECTION 4

- 4.1 All testing and/or maintenance performed on backflow devices by the Town of Hudson or its agent will be charged to the owner of the device.
- 4.2 No backflow device may be removed without the written consent of the Town of Hudson.
- 4.3 All plumbing modifications must be approved by the Hudson Plumbing Inspector and follow the rules and regulations of the Massachusetts Plumbing Code.
- 4.4 The Town of Hudson Public Works Director or his designated representative will make all decisions relating to determination of backflow. Failure to comply with any directive from this office will result in termination of service.
- 4.5 All administrative cost associated with the operation of the Hudson backflow program will be supported by a fee for submittals on survey results, plan approvals, testing results and permitting of testable devices. The Town of Hudson reserves the right to set all fees required for the implementation and operation of a successful backflow program.
- 4.6 All commercial, industrial, and institutional customers using water from the Hudson water system must have installed at the point of connection (immediately downstream of the meter if existing) a state approved reduced pressure backflow device.