



Orange Water Department

16 West Myrtle Street
Orange, Massachusetts 01364
Telephone: 978-544-1115 • Fax: 978-544-1122

Water Commissioners
Donald Barnes
Donald Priestley
Richard Kilhart

Superintendent
Bruce A. Merriam

Regular Meetings
2nd & 4th Mondays
7:00pm

REGULATIONS FOR THE CONTROL OF BACKFLOW AND CROSS-CONNECTIONS

SECTION 1. CROSS-CONNECTION CONTROL AUTHORITY

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

SECTION 2. CROSS-CONNECTION CONTROL – GENERAL POLICY

2.1 **PURPOSE.** The purpose of this regulation is:

2.1.1 To protect the public potable water supply of the area served by the Orange Water Department from the 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

2.1.2 To promote the elimination or control of existing cross-connections, actual or potential, between its customer's in-plant potable system(s) and non-potable systems, plumbing fixtures and industrial piping systems; and

2.1.3 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-connection.

The Town of Orange is an equal opportunity provider.

2.2 **RESPONSIBILITY.** The Water Superintendent 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 Water Superintendent 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 Superintendent or his designated agent shall give notice in writing to said customer to install such an approved backflow prevention device at each service connection to his premises. 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 discontinuing water service to the premises until such device or devices have been properly installed.

SECTION 3. DEFINITIONS

3.1 Water Superintendent – The Superintendent, or his designated agent, in charge of the Orange Water Department is invested 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.

3.2 Approved – Accepted by the Superintendent as meeting an applicable specification stated or cited in this regulation, or as suitable for the proposed use.

3.3 Auxiliary Water Supply – Any water supply on or available to the premises other than the purveyor's approved public potable water supply.

3.4 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.

3.5 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 other than its intended source caused by the sudden reduction of pressure in the potable water supply system.

3.6 Backflow Preventer – A device or means designed to prevent backflow or siphonage.

- 3.6.1 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 as required by Water Department standards.
- 3.6.2 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, tightly closing shut-off valves on either side of the check valves, plus properly located test cocks for the testing of the check and relief valves.
- 3.6.3 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.
- 3.6.4 Pressure Vacuum Breakers** – A device containing one or two independently operating loaded check valves and an independently operating loaded air inlet valve located on the discharge side of the check or checks.
- 3.7 Contamination** – An impairment of the quality of the potable water by 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.
- 3.8 Cross-Connection** – Any physical connection or arrangement of piping or fixtures between two otherwise separate piping systems one of which contains potable water and the other non-potable water or industrial fluids of questionable safety, through which, or because of which, back-flow or back-siphonage may occur into the potable water system.
- 3.9 Cross-Connection – Controlled** – A connection between a potable water system and a non-potable water system with an approved backflow prevention device properly installed that will continuously afford the protection commensurate with the degree of hazard.
- 3.10 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 back-flow 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.

3.11 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.

3.11.1 Hazard – Health (High Hazard) – Any condition, device, or practice in the water supply system and its operation which could create, or, in the judgement of the Water Superintendent, may create a danger to the health and well being of the water consumer.

3.11.2 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.

3.11.3 Hazard – Pollutonal (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.

3.12 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, pollution or plumbing hazard if introduced into an approved water supply.

3.13 Pollution – The presence of any foreign substance (organic, inorganic, or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness of 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.

3.14 Water – Potable – Water from a source which has been approved by the Mass D.E.P. for human consumption.

3.15 Water – Non-Potable – Water which is not safe for human consumption or which is of questionable potability.

3.16 Water – Service Connections – 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 downstream end of the

meter. Service connection shall also include water service connection from a fire hydrant and all other temporary or emergency water service connections from the public potable water system.

3.17 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 4. REQUIREMENTS

4.1 WATER SYSTEM

4.1.1 The water system shall be considered as made up of two parts: the utility system and the customer system.

4.1.2 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.

4.1.3 The source shall include all components of the facilities utilized in the production, treatment, storage, and delivery of water to the distribution system.

4.1.4 The distribution system shall include the network of conduits used for the delivery of water from the source to the customer's system.

4.1.5 The customer's system shall include those parts of the facilities beyond the termination of the utility distribution system which are utilized in conveying utility-delivered domestic water to points of use.

4.2 POLICY

4.2.1 No water service connection to any premises shall be installed or maintained by the Water Department 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 Water Department if a backflow prevention device required by this regulation is not installed, tested and maintained, or if it is found that a backflow 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 or defects are corrected.

4.2.2 The customer's system should be open 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 superintendent 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 State and City statutes relating to plumbing and water supplies and the regulations adopted pursuant thereto. All expenses relating to the disconnection and reconnection shall be at the customer's expense.

4.2.3 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 the service line wherever the following conditions exist:

4.2.3A In the case of premises having an auxiliary water supply which is not or may not be of safe bacteriological or chemical quality and which is not acceptable as an additional source by the D.E.P., 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.

4.2.3B 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 degree of hazard.

4.2.3C 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.

4.2.4 The type of protective device required under subsections 4.2.3A, B, and C shall depend upon the degree of hazard which exists as follows:

4.2.4A In the case of any premises where there is an auxiliary water supply as stated in subsection 4.2.3A of this section; or

4.2.4B 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

4.2.4C 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 connection.

4.2.4D In the case of any premises where there is water or a substance that would be objectionable but not hazardous to health, if introduced into the public water system, the public water system shall be protected by an approved double check valve assembly.

4.2.4E 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 in plant 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.

4.2.5 Any backflow prevention device required herein shall be of a model and size approved by the Water Superintendent. The term "approved backflow prevention device" shall mean a device that is on the "approved list of backflow preventers and double check valves" as revised by the N.H. Water Supply and Pollution Control Commission, or is on the University of Southern California approval list. Said approval lists have been adopted by the Water Superintendent.

4.2.6 It shall be the duty of the customer/user at any premise where backflow prevention devices are installed to have certified inspections and operational tests made at least once per year as required under Massachusetts regulations and this regulation. The Water Department will conduct testing on these devices twice a year. The owner of the device will be charged for these tests. The Water Department may have these tests performed by a designated representative. In those instances where the Water Superintendent 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 Water Department Personnel or by a certified tester approved by the Water Superintendent and approved by the State of Massachusetts. It shall be the duty of the Water Superintendent to see that these timely tests are made. The Water Superintendent shall notify the customer/user in advance when the tests are to be undertaken so that he or his representatives 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. Records of such tests shall be kept by the Water Superintendent.

4.2.7 All decisions relating to determination of backflow devices will be made by the Orange Water Department. Failure to comply with any directive from this office will result in termination of service.

4.2.8 All testing and/or maintenance performed on backflow devices by the Water Department or its agent will be charged to the owner of the device.