

**WESTFIELD OF PUBLIC WORKS**  
**DRINKING WATER DIVISION**  
**CROSS CONNECTION CONTROL RULES AND**  
**REGULATIONS**  
**POLICY NO. CS-009**

Effective January 1, 1999

Revised June 8, 2023

**I. Purpose:**

- A. To protect the public potable water supply served by the Westfield Department of Public Works (DPW), Water Division from the possibility of contamination or pollution by isolating such contaminants or pollutants, which could backflow or back-siphon into the public water system.
- B. To promote the elimination or control of existing cross connections, actual or potential, between its customers in-plant potable water system, and non-potable systems.
- C. To provide for the maintenance of a continuing program of cross connection control, which will effectively prevent the contamination or pollution of all potable water systems by cross connection.

**II. Authority:**

- A. As provided in the *Federal Safe Drinking Water Act of 1974*, (Public Law 93-523), and the *Commonwealth of Massachusetts Drinking Water Regulations*, 310 CMR 22.22, the Westfield DPW, Water Division has the primary responsibility for preventing water from unapproved sources or any other substances from entering the public potable water system.
- B. Westfield DPW Water Division, City Ordinance, Chapter 18, Article II, Division I.

**III. Responsibility:**

- A. The Westfield DPW, Water Division shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow or backsiphonage of contaminations or pollutants. If, as a

result of a survey of the premises, the Water Division determines that an approved backflow prevention device is required at the City's water service connection or in-plant protection on any customer's premises, the Water Division shall issue a cross connection violation form to said customer to install an approved backflow prevention device.

The customer shall, within a time frame determined by the Water Division, install such approved device or devices at his own expense, and failure or refusal or inability on the part of the customer to install said device or devices within the specified time frame shall constitute a ground for discontinuing water service to the premises until such device or devices have been properly installed.

#### **IV. Definitions:**

- A. Air Gap Separation:** The method of preventing backflow through the use of an 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 level rim of the receptacle. The vertical distance must be at least 2X the diameter of the pipe or faucet.
- B. Approved:** Accepted by the Reviewing Authority as meeting an applicable specification stated or cited in this regulation or as suitable for proposed use.
- C. Approved Backflow Prevention Device or Devices:** A method to prevent backflow approved by the City of Westfield DPW, Water Division.
- D. Atmospheric Vacuum Breaker:** An approved backflow device used to prevent back siphonage, which is not designed for use under static line pressure.
- E. Auxiliary Water Supply:** Any water supply of unknown or questionable quality on or available to the premises other than the supplier's approved public potable water supply.
- F. Back Pressure:** Pressure created by mechanical means or other means which causes water or other liquids or substances to flow or move in a direction opposite to that which is intended.
- G. Back Siphonage:** A form of backflow due to reduced or sub-atmospheric pressure within a water system.
- H. Backflow:** The flow of water or liquids, mixtures or substances into the distribution pipes of a potable water supply from any source other than the intended source.
- I. Backflow Preventer with Intermediate Atmospheric Vent:** A device having two independently operating check valves separated by an intermediate

chamber with a means for automatically venting it to the atmosphere, in which the check valves are force loaded to a normally closed position and the venting means is force loaded to a normally open position.

- J. Barometric Loop: A loop of pipe rising at least 35 feet, at its topmost point, above the highest fixture it supplies.
- K. Contaminant: Any physical, chemical, biological or radiological substance or matter in water.
- L. Cross Connection: Any actual or potential connection between a distribution pipe of potable water from a public water system and waste pipe, soil pipe, sewer, drain or other unapproved source.
- M. Cross Connection Violation Form: A violation form designated by the Water Division, which is sent to the owner by the Water Division with copies sent to the DEP, Plumbing Inspector and Board of Health delineating cross connection violations found on the owner's premises and procedure for corrective action.
- N. DEP: The Massachusetts of Environmental Protection.
- O. Double Check Valve Assembly: A backflow prevention device which incorporates an assembly of check valves, with shut-off valves at each end and appurtenances for testing.
- P. In-Plant Protection: The location of approved backflow prevention devices in a manner which provides simultaneous protection of the public water system and potable water system within the premises.
- Q. Owner: Any person maintaining a cross connection installation or owning or occupying premises on which cross connections can or do exist.
- R. Permit: A document issued by the DEP or the Water which allows a cross connection installation.
- S. Person: Any individual, corporation, company, association, trust, partnership, the Commonwealth, a municipality, district, or other subdivision or instrumentality of the United States, except that nothing herein shall be constructed to, refer to, or to include any American Indian tribe or the United States Secretary of Interior in his capacity as trustee of Indian lands.
- T. Pressure Vacuum Breaker: An approved backflow prevention device designed to prevent only back siphonage and which is designed for use under static line pressure and which has necessary appurtenances for testing. Reduced Pressure Backflow Preventer: An approved backflow prevention device incorporating (1) two or more check valves, (2) an automatically operating differential relief valve located between the two

checks, (3) two shut-off valves, and (4) necessary appurtenances for testing.

U. Residential Dual Check: An assembly of two spring loaded, independently operating check valves without tightly closing shut-off valves and test cocks. Generally, employed immediately downstream of the water meter to act as a containment device.

V. Reviewing Authority: The DEP and/or the Westfield DPW, Water Division.

## **V. Administration:**

- A. The Westfield DPW, Water Division will operate an active cross connection control program, to include the keeping of necessary records, which fulfills the requirements of the State DEP's Cross Connection Regulations and is approved by the State of Environmental Protection.
- B. The owner shall allow his property to be inspected for possible cross connections and shall follow the provisions of the 's program and the regulations.

## **VI. Requirements:**

### **A. BOARD OF WATER COMMISSIONERS**

- 1. The **Board of Water Commissioners** may establish an administration fee schedule for the required testing and re-testing of backflow prevention devices in the City of Westfield.
- 2. The **Board of Water Commissioners** may establish a fee schedule for the Water Division review and approval and permitting of Cross Connection installations which require reduced pressure backflow prevention, double check valve assemblies or air gap separations.
- 3. The **Board of Water Commissioners** may establish a system of fines to be levied for Cross Connection violations which are not corrected within the time allotted by the Water Division.

### **B. WATER DIVISION**

- 1. On new installation, the will provide on-site evaluation and/or inspection of plans in order to determine the type of backflow preventer, if any, that will be required, and notify the owner of plan approval requirements by the appropriate reviewing authority.
- 2. The Water Division shall review and approve design data sheets and plans for proposed new installations of reduced pressure backflow preventers, double check valve assemblies, pressure vacuum breakers

and air gap separations with tank and pump arrangements. The Water Division may not delegate, or sub delegate, contract or subcontract this responsibility to any other entity, unless otherwise authorized in writing by the DEP.

3. The Water Division shall ensure, upon completion of installation, that backflow prevention devices are installed according to the approved design data sheet and plans and tested for proper operation.
4. The Water Division shall assign a Cross Connection identification number for each approved device.
5. For premises existing prior to the start of this program, the Water Division will perform surveys of the premises and reviews of as-built plans and issue a cross connection violation form to the owner detailing any corrective action required, the method of achieving the correction, and the time allowed for the correction to be made. The time period allowed shall depend upon the degree of hazard involved.
6. The Water Division 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 will be regularly tested to insure satisfactory operation.
7. If the Water Division determines at any time that a serious threat to the public health exists, the water service will be terminated immediately.
8. The shall have on its staff a backflow prevention device tester certified by the Commonwealth of Massachusetts and who is also a Cross Connection Control surveyor certified by the Commonwealth of Massachusetts.
9. The Water Division may terminate the water service to any premises where cross connection test fees or fines for Cross Connection violations have gone unpaid for more than one year.
10. The Water Division may levy fines to owners of premises where discovered cross connection violations are not corrected in the time frame allotted by the Water Division
11. The Water Division shall deny water service to any premise where cross connections exist until satisfactory corrective action has been taken.
12. The Water Division shall discontinue water service to any premise where it is found that backflow prevention devices have been removed, bypassed or otherwise rendered ineffective until satisfactory corrective actions have been taken.

C. OWNER:

1. The owner shall be responsible for the elimination or proper protection of all cross connections on his premises.
2. The owner shall be responsible for applying for and obtaining all necessary approvals and permits for the maintenance of cross connections and installation of backflow prevention devices.
3. The owner shall be responsible for the payment of all fees for permits.
4. The owner shall have any device that fails an inspection or test, repaired by a licensed plumber within the time frame determined by the Water Division.
5. The owner shall inform the Water Division of any proposed or modified cross connections and also of any existing cross connections of which the owner is aware but have not been found by the Water Division inspector.
6. The owner shall not install a by-pass around any backflow preventer unless there is an approved backflow preventer of the same type on the bypass. Owners, who cannot shut down operation for testing of device(s), must supply additional devices necessary to allow testing to take place.
7. The owner shall install backflow preventers in a manner approved by the Water Division.
8. The owner shall install only reduced pressure backflow preventers, double check valve assemblies and pressure vacuum breakers approved by the DEP and the Water Division.
9. Any owner of industrial, commercial, or institutional premises having a private well or other private water source, shall not have this well or source, cross connected to the City water system. The owner of a non-residential property may be required to install a backflow preventer at the service entrance if a private water source is maintained even though it is not cross connected to the Water Division's system.
10. The owner of any residential premises having a private well or other private water source, will not be allowed a physical connection with the public water supply system.
11. The owner shall be responsible for payment of all fees for initial plan approval and for any annual fees for recertification of devices by the Water Division.

12. The owner shall provide access and the necessary labor for inspection and testing of cross connection protection devices during regular business hours.
13. The owner shall maintain a “spare parts” kit and tools required for the removal, repair, and re-assembly of each cross connection protection device on the property.
14. The owner shall provide access and the necessary labor for inspection and testing of cross connection protection devices during regular business hours.
15. The owner shall maintain on the premises, complete records on all devices for the life of the device.
16. The owner shall be responsible for the payment of any fines levied by the City for cross connection violations uncovered on the premises.
17. The owner shall maintain safety programs and equipment necessary to allow for the safe testing and inspection of cross connections on the premises.

## **VII. Existing In-Use Backflow Prevention Devices:**

- A. Any existing backflow prevention assembly shall be allowed by the Water Division to continue in service, unless the degree of health hazard is such as to supersede the effectiveness of the present backflow preventer or result in an unreasonable risk to public health. Where the degree of hazard has increased, as in the case of a residential installation converting to a commercial business establishment, any existing backflow preventer must be upgraded to correspond to the degree of health hazard.

## **VIII. Routine Testing:**

- A. The shall have the responsibility for testing reduced pressure backflow preventers, double check valve assembly, and pressure vacuum breakers devices. Reduced pressure backflow preventers shall be tested semiannually and double check valve assembly and pressure vacuum breakers shall be tested annually.
- B. Backflow device testing and inspection shall be performed by a DEP certified backflow tester.
- C. The testing shall be conducted during the Water Division’s regular business hours. Exceptions to this may be made at the request of the owner and additional charges will be assessed to cover the increased cost to the Water Division.

- D. Any backflow preventer which fails during a periodic test must be repaired or replaced by a licensed plumber. When repairs are necessary, upon completion of the repair, the device will be re-tested at the owner's expense to insure proper operation. High hazard situations will not be allowed to continue unprotected if the backflow preventer fails the test and cannot be repaired immediately. In other situations, a compliance date of not more than fourteen (14) days after the test date will be established. The owner is responsible for spare parts, repair tools, or a replacement device. Parallel installation of two devices is an effective means of the owner insuring that uninterrupted water service remains during testing or repair of devices and is strongly recommended when the owner desires such continuity.
- E. Backflow prevention devices will be tested more frequently than specified above in "paragraph A" in cases where there is a history of test failures and the owner feels that, due to the degree of hazard involved, additional testing is warranted. Cost of additional testing will be borne by the owner.

#### **IX. Installation of New Backflow Prevention Devices:**

All known cross connections within the City of Westfield's water system must be approved by the Water Division. All cross connections require the installation of a backflow prevention device. The following steps shall be completed prior to approval being granted for a cross connection:

- A. The owner of the cross connection shall submit a "design data sheet" (attachment A), with plans showing the proposed method of protection of the Public water system to the Westfield DPW, Water Division.
- B. The "design data sheets" and backflow prevention device installation plans will be reviewed and approved by the Water Division's Certified Cross Connection Inspector/Surveyor and the Water Resources Superintendent/Deputy Superintendent.
- C. Upon the approval by the Water Division, the local plumbing inspector shall review the installation plans and specifications containing cross connections and issue plumbing permits as required by the state plumbing code.
- D. Backflow prevention devices installed on "Fire Protection Lines" require the additional approval of the Westfield Fire.
- E. Within fourteen (14) calendar days of the installation, the Westfield DPW, Water Division and the City's Plumbing Inspector shall be notified to arrange for an inspection and initial test of the installation.
- F. After successful installation, inspection and test, the Westfield DPW, Water Division will assign a cross connection identification number and will issue a permit for the approved installation.
- G. Permits for approved installations must be renewed annually.

## **X. Containment Devices:**

Facilities determined to present high health hazard conditions must have their in-plant cross connection protection supplemented with a reduced pressure backflow prevention or air gap separation installed at the meter or property line. The Water Division may also, at its discretion, require containment devices to be installed on any water service line where in the 's opinion, cross connections could contaminate the public water supply system.

## **XI. Enforcement:**

- A. The shall not allow a cross connection to exist within the public water supply system unless it is considered necessary and all appropriate approvals and permits have been issued.
- B. Whoever maintains a cross connection without an approved permit, or after revocation of the permit or whoever maintains a cross connection without installing a backflow device required by the DEP may be subject to civil penalty and fines not to exceed \$25,000.00 per day for each day that such violations occur or continue.
- C. Upon due notice to the owner maintaining a cross connection, the may revoke any permit, in the Water Division's opinion, no longer complies with 310 CMR 22.00.
- D. All owners of commercial, industrial, agricultural, institutional or residential premises served by the Westfield public water system shall authorize agents or employees of the Westfield DPW, Water Division to enter their premises without a warrant for the purpose of inspecting, testing and surveying their water systems for cross connections.

## **XII. Strainers:**

The Board of Water Commissioners requires that all new and retrofit installation of reduced pressure backflow preventers and double check valve assemblies include the installation of a strainer located immediately upstream of the backflow device. The installation of strainers will preclude fouling of the backflow devices due to both foreseen and unforeseen circumstances occurring to the water supply system such as water main repairs, water main breaks, fires, periodic cleaning and flushing of mains, etc. These occurrences may "stir up" debris within the water main that will cause fouling of backflow devices installed without the benefit of strainers.

## **XIII. Residential Cross Connection Control**

The Water Division is concerned with the potential for backflow into the public water supply system from those residential customers having lawn sprinkler and irrigation system and other miscellaneous residential water uses. The Water Division's Residential Cross Connection Control Policy is outlined below.

- A. Where a single or multi-family residential customer served by the public water supply system has or proposes to install a lawn sprinkler or irrigation system, the minimum required backflow protection to prevent backsiphonage shall be the pressure vacuum breaker. Pressure vacuum breakers (PVB) shall be located, specified, installed, maintained and accessible for inspection in a manner acceptable to the Water Division and the City of Westfield plumbing or building code enforcement official. The minimum height of a PVB shall be twelve (12) inches higher than the highest downstream sprinkler head.
- B. For high health hazard residential irrigation systems described below, the public water system shall be protected against backflow by requiring the customer to install an approved RPZ device on those systems where provisions are made for chemical injection.

**NOTE:** The Water Division may allow protective backflow devices to be installed in the internal supply pipes to a lawn sprinkler or irrigation system provided that there are no other hazards associated with a residential user. Containment at the service connection with an approved RPZ shall be required in high health hazard cross connections.

## **2. Miscellaneous Residential Water Uses**

Any activity, situation, or use of water which establishes a degree of hazard within a single or multi family residence equivalent to that of a commercial user shall be required to have the appropriate backflow protection devices. Examples include but are not limited to customers utilizing boiler feed corrosion inhibitors, antifreeze loops, kidney dialysis equipment, etc.

## **3. Residential threaded hose connections**

Residential properties are required to have hose bib vacuum breaker backflow prevention on all threaded hose connections.

## **4. New Construction**

All new residential construction shall have a residential dual check valve installed at the water meter.

Approved by the Board of Water Commissioners: