

**MASSACHUSETTS DEVELOPMENT FINANCE
AGENCY**

Cross Connection Control Rules

**for the
Devens Water System
Devens, Massachusetts**

January 2014

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Cross Connection Control Rules for the Devens Water System Devens, Massachusetts

I. PURPOSE

- A. To protect the public potable water supply served by the Massachusetts Development Finance Agency (MDFA) within Devens from the possibility of contamination or pollution by isolating such contaminants or pollutants, which could backflow or backsiphon 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 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 water purveyor has the primary responsibility for preventing water from unapproved sources or any other substances from entering the public potable water system.

III. RESPONSIBILITY

- A. The MDFA shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow or backsiphonage of contaminants or pollutants. If as a result of a survey of the premises, the MDFA determines that an approved backflow prevention device is required at the Devens's water service connection, MDFA or its delegated agent, shall issue a cross connection violation form to said customer directing them to install approved backflow prevention devices. The customer shall, within a time frame determined by the MDFA, install such approved device or devices at his own expense, and the failure, 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.
- B. Approved: Accepted by the Reviewing Authority as meeting an applicable specification stated or cited in this regulation or as suitable for the proposed use.
- C. Approved Backflow Prevention Device or Devices: A method to prevent backflow approved by the Department for use in Massachusetts.
- D. Atmospheric Vacuum Breaker: An approved backflow device used to prevent back siphonage that 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 system.
- H. Backflow: The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply from any source other than the intended source.
- I. Backflow Preventor 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 forced 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 any waste pipe, soil pipe, sewer, drain, or other unapproved source.
- M. Cross Connection Violation Form: A violation form designated by the Department, which is sent to the owner by the water supplier with copies sent to the Department and Devens Enterprise Commission delineating cross connection violations found on the owner's premises and a procedure for corrective action.
- N. Department: The Massachusetts Department of Environmental Protection.

- O. Devens: The real land and other property, including the water system, transferred from the Army to the Massachusetts Development Finance Agency and comprising the Devens Regional Enterprise Zone, as defined in the Act.
- P. Devens Water System: The water works under control of MassDevelopment. This includes the water mains, pump stations, wells, treatment plants and all other works under the control of the MDFA.
- Q. 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.
- R. In-Plant Protection: The location of approved back flow prevention devices in a manner which provides simultaneous protection of the public water system and the potable water system within the premises.
- S. Massachusetts Development Finance Agency: The body politic of the state of Massachusetts, responsible for promulgation and implementation of these regulations and for the acquisition, control, maintenance, redevelopment and regulation of municipal facilities, including water facilities within the Devens Water System.
- T. Owner: Any person maintaining a cross connection installation or owning or occupying premises on which cross connections can or do exist.
- U. Permit: A document issued by the Department, which allows a cross connection installation.
- V. 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 the Interior in his capacity as trustee of Indian lands.
- W. 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.
- X. Reduced Pressure Backflow Preventer: An approved backflow prevention device incorporating (1) two 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.
- Y. 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.
- Z. Reviewing Authority: The Department, its Designee, or the local plumbing inspector, authorized by M.G.L. c.142 and licensed by the Board of State Examiners of Plumbers and Gas Fitters, whichever is responsible for the review and approval of the installation of an approved backflow prevention device.

V. ADMINISTRATION

- A. The MDFA 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 Department.
- B. The owner shall allow his property to be inspected for possible cross connections and shall follow the provisions of the MDFA'S program and the Departments regulation.

VI. REQUIREMENTS

A. MASSACHUSETTS DEVELOPMENT FINANCE AGENCY (MDFA)

- 1. On new installations, the MDFA 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. For premises existing prior to the start of this program, the MDFA 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 to be made. The time period allowed shall depend upon the degree of hazard involved.
- 3. The MDFA 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.
- 4. If the MDFA determines at any time that a serious threat to the public health exists, the water service will be terminated immediately.
- 5. The MDFA shall have on its staff, or shall have delegated representative, who is a backflow prevention device tester certified by the Commonwealth of Massachusetts.
- 6. The MDFA will begin initial premise inspections to determine the nature of existing or potential hazards, following the approval of this program by the Department, during calendar year 1998. Initial focus will be on high hazard industries and commercial premises.

B. OWNER

- 1. The Owner shall be responsible for the elimination or 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, and applying annually for the renewal of each permit.
- 3. The Owner shall have any device that fails an inspection or test repaired by a licensed plumber.

4. The Owner shall inform the MDFA of any proposed or modified cross connection and also any existing cross connection of which the owner is aware but has not been found by the 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 bypass. Owners who cannot shut down operation for testing of the device(s) must supply additional devices necessary to allow testing to take place.
6. The Owner shall install backflow preventers in a manner approved by the Department and by the MDFA.
7. The Owner shall install only reduced pressure backflow preventers and double check valve assemblies approved by the Department.
8. Any Owner of industrial, commercial, or institutional premises having a private well or other private water source must have a permit if the well or source is cross connected to the MDFA'S system. Permission to cross connect may be denied by the MDFA. 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 MDFA system.
9. 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.
10. The Owner shall be responsible for the payment of all fees for permits, device testings, retesting in the case that the device fails to operate correctly, and second re-inspections for non-compliance with MDFA or Department requirements.

VII. DEGREE OF HAZARD

The MDFA recognizes the threat to the public water system arising from the cross connections. As such, the MDFA whereas it is responsible for the quality of the public water supply, may require a containment device on the water service entrance to any customer who, as a result of unprotected cross connections, could contaminate the public water supply system.

VIII. ENFORCEMENT

The MDFA shall not allow a cross connection to exist with the public water supply system unless it is considered necessary and all appropriate approvals and permits have been issued.

IX. EXISTING IN-USE BACKFLOW PREVENTION DEVICES

Any existing backflow preventer shall be allowed by the MDFA to continue in service unless the degree of hazard is such as to supersede the effectiveness of the present backflow preventer or result in a unreasonable risk to the public health. Where the degree of hazard has increased, as in the case of a residential installation converting to a business establishment, any existing backflow preventer must be upgraded to a reduced pressure backflow preventer, or a reduce pressure backflow preventer must be installed in the event that no backflow device was present.

X. PERIODIC TESTING

- A. Reduced pressure backflow preventers and double check valve assemblies shall be tested and inspected at least semi-annually by the MDFA.
- B. The MDFA's certified tester or his delegated representative, who shall be a certified tester, shall perform periodic testing.
- C. The testing shall be conducted during the MDFA'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 MDFA.
- D. Reduced pressure backflow preventers and double check valve assemblies must be tested annually by the owner, independent of the semiannual test by the water supplier, and said test must be conducted by a certified tester.
- E. Any backflow preventer, which fails during a periodic test, must be replaced or repaired by a licensed plumber. When repairs are necessary, upon completion of the repair, the device will be retested 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 days after the test 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.
- F. Backflow prevention devices will be tested more frequently than specified above in "A" in cases where there is a history of test failures and the MDFA feels that due to the degree of hazard involved, additional testing is warranted. Cost of the additional tests will be born by the Owner.

XI. RECORDS AND REPORTS

A. RECORDS

The MDFA will initiate and maintain the following:

1. Master files on customer cross connection tests and / or inspections.
2. Master files on approved cross connection installations.
3. Copies of lists and summaries supplied to the Massachusetts Department of Environmental Protection.

B. REPORTS

The MDFA will submit the following to the DEP:

1. Initial listing of high hazard cross connections.
2. Initial listing of low hazard cross connections.
3. Annual update lists of Items 1 and 2 above.
4. Annual summary of cross connection inspections and surveys.

ADDENDUM

1. STRAINERS

MDFA strongly recommends that all new and retrofit installations of reduced pressure backflow preventers and double check valve assemblies include the installation of strainers located immediately upstream of the backflow device. The installation of strainers will preclude the fouling of 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 the backflow devices installed without the benefit of strainers.