

10-144

**STATE OF MAINE
CROSS CONNECTION RULES**

Chapter 226



**DEPARTMENT OF HEALTH AND HUMAN SERVICES
MAINE CENTER FOR DISEASE CONTROL AND PREVENTION
DIVISION OF ENVIRONMENTAL HEALTH
11 STATE HOUSE STATION
AUGUSTA, MAINE 04333**

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**10-144 DEPARTMENT OF HEALTH AND HUMAN SERVICES
MAINE CDC
DIVISION OF ENVIRONMENTAL HEALTH
DRINKING WATER PROGRAM**

Chapter 226: CROSS CONNECTION RULES

SUMMARY STATEMENT

These rules are designed to regulate, control, and prevent the contamination of drinking water by the backflow of water or other liquids, mixtures or substances into the distribution pipes of a water supply system from unintended source(s).

BASIS STATEMENT

These rules are promulgated because a public water system is responsible for providing safe water to consume, and because active, unprotected, or inadequately protected cross-connections provide a clear threat to public health and the safety of public water systems. These rules are written as minimum standards for cross connection control. A public water system (supplier) may adopt more stringent requirements for cross connection control.

AUTHORITY

These rules are authorized under 22 M.R.S.A. §§ 42(1), 42(3), 2612(2) & 2612(5).

Non-Discrimination Notice

In accordance with Title VI of the Civil Rights Act of 1964, as amended by The Civil Rights Restoration Act of 1991 (42 U.S.C. 1981, 2000e et seq.) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), The Age Discrimination Act of 1975, as amended (42 U.S.C. 6101 et seq.), Title II of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.), and Title IX of the Education Amendments of 1972, the Maine Department of Human Services does not discriminate on the basis of sex, color, national origin, disability or age in admission or access to or treatment or employment in its programs and activities.

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1. GENERAL PROVISIONS

A. Application and Scope

1. The protection of the public from contaminated water caused by cross connections is accomplished by two strategies: “containment” and “fixture isolation”. Containment of cross connection hazards protects the supplier’s water system from contamination by a facility with internal cross connections. Fixture isolation prevents the water system *within* a facility from contamination by cross connections. These two strategies protect a water system from cross connections from the water system source to the end-user tap.

These rules, administered by the Department of Health and Human Services, require the “containment” of cross connection hazards of public water systems. The Maine State Internal Plumbing Code, administered by the Department of Professional and Financial Regulation at 02-395 CMR 4, protects the public against cross connection hazards associated with fixture isolation.

Note that containment devices are regulated by the Maine State Internal Plumbing Code at 02-395 CMR 4.

2. The provisions of these rules shall apply to all community public water systems with one or more low or high-hazard service connections and all non-community public water systems with one or more high-hazard service connections.
3. The Department encourages all water systems with service connections to have a cross connection control program.
4. The Department reserves the right to require any public water system to create and maintain a cross connection control program based on existing or potential hazards.

B. Constitutionality

Should any section, paragraph, sentence, clause, or phrase of these Rules be declared unconstitutional or invalid for any reason, such decision shall not affect the validity of the remaining portion of these rules.

2. DEFINITIONS

- A. **Air-Gap Separation** – A physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An air-gap separation shall be at least twice the diameter of the supply pipe measured vertically above the overflow rim of the vessel – in no case less than one inch (2.54 cm).
- B. **Anti-Backflow Assembly** – An anti-backflow device with gate valves directly before and after it.
- C. **Anti-Backflow Device** - A device or means to prevent backflow. For the purposes of these Rules, the term “backflow device” shall include the term “Anti-Backflow Assembly”.
- D. **Approved Source** - A source of water utilized by a public water system for distribution to the public for consumptive purposes and which is approved by the Department for such use, following a required and/or approved treatment process.
- E. **Backflow Preventer** - An anti-backflow device.
- F. **Backflow** - The undesirable reversal of the flow of water or mixtures of water and other liquids, gases, or other substances into the distribution pipes of a potable water supply from any source or sources other than the public water system’s approved source.
- G. **Backflow Preventer, Reduced Pressure Principle Type** - An assembly of differential valves and check valves including an automatically opened spillage port to the atmosphere.
- H. **Back-Siphonage** - Backflow resulting from negative pressures in the distribution pipes of a potable water supply.
- I. **Commissioner** – Department of Health and Human Services Commissioner
- J. **Community Public Water System** - A public water system which serves at least fifteen service connections used by year-round residents or regularly serves at least twenty-five year-round residents.
- K. **Containment** – method for protection from contamination by a facility with internal cross connections of a supplier’s public water system.
- L. **Contaminant** – Any chemical, biological, or radiological substance or matter which is an impairment of the quality of the water which creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids or waste.

- M. Cross-connection** - Any physical or potential connection, or structural arrangement between two otherwise separate systems, one of which contains potable water and the other which contains water of unknown or questionable safety and/or steam, chemicals, gases or other contaminants and/or pollutants, whereby there may be a flow of an unapproved water to a potable water supply.
- N. Department** - Maine Department of Health and Human Services, Maine CDC, Division of Environmental Health, Drinking Water Program.
- O. Fixture Isolation** – method for the prevention of contamination by cross connections *within* a facility served by a public water system.
- P High Hazard**- a contamination hazard, as defined in the Maine State Internal Plumbing Code at 02-395 CMR 4. If a backflow were to occur, the resulting effect on the water supply could cause illness or death if consumed by humans. The foreign substance (contaminant) may be toxic and/or harmful to humans either from a chemical, bacteriological, or radiological standpoint. The effects of the contaminants may result from a short or long-term exposure.
- Q. Industrial Fluids** –Any 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, pollution or plumbing hazard if introduced into an approved water supply. This may include, but is not limited to: polluted or contaminated used waters; all types of process waters and “used waters” originating from public potable water system which may deteriorate in sanitary quality; chemicals in fluid form; plating acids and alkalines; circulated cooling waters connected to an open cooling tower and/or cooling waters that are chemically or biologically treated or stabilized with toxic substances; contaminated natural waters such as from wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems, etc.; oils, gases, glycerine, paraffines, caustic and acid solutions and other liquid and gaseous fluids used in industrial or other processes or for fire fighting purposes.
- R. Low Hazard**- a pollution hazard, as defined in the Maine State Internal Plumbing Code at 02-395 CMR 4. If a backflow were to occur, the resulting health significance would be limited to changes in aesthetic quality such as taste, odor or color. The foreign substance must be non-toxic and non-bacterial in nature with no significant health effect.
- S. Non-Community Public Water System**- A public water system that is not a community water system. There are two types of Non-Community Water Systems, which include non-transient, non-community systems and transient systems.

- a. **Non-Transient, Non-Community Water Systems:** A Non-Community water system that serves at least 25 of the same persons for six months or more per year and may include, but is not limited to, a school, factory, industrial park or office building, and
 - b. **Transient Non-Community Water Systems:** A Non-Community water system that serves at least 25 persons, but not necessarily the same persons, for at least 60 days per year and may include, but is not limited to, a highway rest stop, seasonal restaurant, seasonal motel, golf course, park or campground. A bottled water company is a transient, non-community water system.
- T. Owner** - Any person who has legal title to, or license to operate or inhabit a property upon which a cross-connection inspection is to be made or upon which a cross-connection is present.
- U. 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.
- V. Political Subdivision** - Any municipality, county, district or any portion or combination of two(2) or more thereof.
- W. Pollutant** - A foreign substance that impairs the quality of the water to a degree which does not create a hazard to the public health but which does adversely and unreasonably affect the aesthetic quality (taste, odor or color) of such water for domestic use.
- X. Potable Water** - An approved water source, free from impurities present in any amount sufficient to cause disease or harmful physiological effects. An approved water source whose physical, bacteriological, chemical and radiological quality must conform with the requirements of the State of Maine *Rules Relating to Drinking Water* at 10-144 CMR 231.
- Y. Public Water System** "Public water system" means any publicly or privately owned system of pipes or other constructed conveyances, structures and facilities through which water is obtained for or sold, furnished or distributed to the public for human consumption, if such a system has at least 15 service connections, regularly serves an average of at least 25 individuals daily at least 60 days out of the year or bottles water for sale. Any publicly or privately owned system that only stores and distributes water, without treating or collecting it; obtains all its water from, but is not owned or operated by, a public water system; and does not sell water or bottled water to any person, is not a "public water system." The term "public water system" includes any collection, treatment, storage or distribution pipes or other constructed conveyances, structures or facilities under the control of the supplier of water and used primarily in connection with such a system, and any collection or pretreatment

storage facilities not under that control that are used primarily in connection with such a system. The system does not include the portion of service pipe owned and maintained by a customer of the public water system.

- Z. Residential Hazard** – Any connection that has the same level of hazard as a typical residential household. Public water suppliers can increase protection from residential cross connection hazards using anti-backflow devices at the discretion of the supplier.
- AA. Startup Date** – The date a public water system starts providing water to its customers.
- BB. Supplier** - Any person who controls, owns or generally manages a public water system.
- CC. System** - Public Water System as defined in these Rules above and in the *Rules Relating to Drinking Water* at 10-144 CMR 231.

3. ADMINISTRATION

- A. The supplier shall not allow a cross-connection at any point within its system unless deemed necessary and approved by the supplier. All parties seeking approval of a cross connection must submit an application for approval to the supplier.
- B. All connections to a public water system, including connections provided specifically for fire suppression systems, shall be evaluated by the supplier for cross connection potential and degree of hazard.
- C. All cross connections shall be protected by backflow prevention devices, assemblies, and methods specified in the Maine State Internal Plumbing Code at 02-395 CMR 4.
- D. The owner shall be responsible for ensuring the proper operation and maintenance of an anti-backflow device and the periodic regular testing of the device as required by the Maine State Internal Plumbing Code or by the public water supplier.
- E. The supplier shall be responsible for the administration of its cross-connection control program and ensuring that backflow preventers installed for containment purposes are periodically tested as required.

4. CROSS CONNECTION CONTROL PROGRAMS

- A. All suppliers serving a community population with one or more low or high hazard service connections or a non-community population with one or more high

hazard service connections shall submit a written cross-connection control program to the Department for approval within sixty (60) days of the date the system is established or service is extended to the low or high hazard connection(s). The cross-connection control program shall be implemented and in effect within a period not to exceed nine (9) months of the date the system is established or service is extended to a low or high-hazard connection.

- B. Cross connection control programs, approvals, and device testing records must be available for review by the Department's field inspectors during regular sanitary survey or other on-site inspections.
- C. The Department specifically reserves the right to inspect all cross-connections. The supplier shall be administratively responsible for the corrections necessary as a result of a Departmental inspection. The owner and/or supplier shall comply with any Departmental or supplier's orders issued as a result of said inspections of the water system.
- D. Cross connection control programs shall include these sections (The model program in the EPA Cross Connection Control Manual can be used as a reference for creating these sections, EPA 816-R-03-002, available at www.epa.gov/safewater):
 - 1. Purpose & Scope;
 - 2. Authority;
 - 3. Responsibilities;
 - 4. Definitions;
 - 5. Administration;
 - 6. Requirements;
 - 7. Degree of Hazard;
 - 8. Cross Connection Approvals;
 - 9. Exemptions;
 - 10. Periodic Testing;
 - 11. Records and Reports;
 - 12. Fees and Charges
 Addendum
- E. Suppliers shall review their cross connection control programs at least every five years. Updates shall be made as needed. Updated cross connection control programs shall be submitted to and approved by the Department.

5. DEGREE OF HAZARD

For definitions on the three degrees of hazard (low hazard, high hazard, and residential hazard), refer to Section 2 (P), (R) and (Z) infra.

6. APPROVED ANTI-BACKFLOW DEVICES

All anti-backflow devices must be approved per the requirements of the current Maine State Internal Plumbing Code 02-395 CMR 4.

7. CROSS-CONNECTION CONTROL APPLICATION AND APPROVAL PROCESS

- A. The supplier shall not allow a cross-connection within the public water system unless deemed necessary and approved by the supplier and protected by an approved backflow-prevention method.
- B. All cross-connection approval applications should be submitted to the supplier for review and approval.
- C. Records of cross-connection approvals and devices shall be kept on file with the supplier as long as the cross connection is present and until five years after the cross connection is eliminated. Records of tests for testable cross connection control devices shall be kept on file with the supplier for 5 years after the date of the test. Records must be available for inspection by Department staff.
- D. It shall be the supplier's responsibility to review the degree of hazard of the cross-connection, assign the proper hazard classification to a specific cross-connection and designate the proper classification on the specific cross-connection application.
- E. The owner shall apply for the approval of a cross-connection on appropriate forms provided by the supplier and submit said application to the supplier.
- F. The supplier shall record on the application the degree of hazard (High, Low or Residential) and the determination as to whether or not the cross connection is approved. Cross connections shall be reviewed for re-approval at the discretion of the supplier. Requests for re-approval of a cross connection shall be reviewed by the supplier, and if no changes have occurred, the cross connection shall be automatically renewed. If changes have occurred during any approved period, the cross connection application shall be reviewed by the supplier for a modification to the degree of hazard determination.
- G. Cross connection approvals shall be non-transferable.

8. EXEMPTIONS

- A. Any existing backflow preventer shall be allowed to continue in service unless:

1. The supplier and/or Department considers the condition of any portion of the device to be such that replacement should be made, or
 2. The degree of hazard is changed.
- B. Refer to the Maine State Internal Plumbing Code at 02-395 CMR 4 for specific fixture isolation requirements.
- C. The Commissioner may grant one or more exemptions from this rule to a public water system or owner, if the following exist:
1. The exemption will not result in an unreasonable risk to the public health; and/or;
 2. The public water system or owner is unable to comply with the regulation due to compelling factors, not including economic factors.
- D. An exemption shall not alter the degree of hazard classification of the cross-connection and shall not exclude the use of some appropriate anti-backflow device not necessarily assigned to the particular degree of hazard assigned to the cross-connection. Prior to granting an exemption, the Commissioner shall provide notice in a local newspaper and give an opportunity for public hearing on the proposed exemption. Each exemption may also be conditioned on monitoring, testing, analyzing or other requirements to ensure the protection of the public health, and shall include a compliance schedule.

9. RESPONSIBILITY

- A. It shall be the responsibility of the supplier and owner to ensure that no unprotected cross-connection is present. If the supplier has reasonably ordered an owner to protect its water supply from a potential or actual cross-connection and the owner does not do so, the supplier is required to discontinue service to the owner within a period of time specified in the water supplier's Cross- Connection Control Program. Notice shall be given to the Department and to the Maine Public Utilities Commission.
- B. The owner shall be responsible for ensuring the proper operation and maintenance of a backflow preventer and the periodic regular testing of the device as required by the Maine State Internal Plumbing Code or by the public water supplier.
- C. All owners maintaining cross-connections between their private system and the supplier's water system shall eliminate and disconnect such cross-connections unless deemed necessary by the water supplier, and protected by a backflow preventer approved by the supplier and approved for the degree of hazard associated with the cross-connection, according to the Maine State Internal

Plumbing Code. Such disconnection shall occur within six months of the effective date of the cross-connection control program.

- D. It shall be the responsibility of the owner to inform the supplier of any new, existing, proposed, or modified cross-connection.
 - E. It shall be the responsibility of the owner to provide access during normal working hours to the premises for any representative of the supplier or to any representative of the Department or any other state or federal agency authorized to do so for the expressed purpose of inspecting for possible cross-connections or gaining information in the preparation of an approval. This shall include providing copies of any plans, drawings, reports or specifications relating to the water system or proposed cross-connection control devices.
 - F. It shall be the responsibility of the owner to comply with all provisions of any cross connection approval and the supplier's Cross-Connection Control Program.
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STATUTORY AUTHORITY: 22 M.R.S.A. §2612(5)

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