

CROSS-CONNECTION CONTROL
PROGRAM
FOR THE
DOVER AND FOXCROFT WATER DISTRICT
OF THE
TOWN OF DOVER-FOXCROFT, MAINE

ADOPTED BY BOARD OF TRUSTEES

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I. PURPOSE

This program is designed to prevent the contamination of drinking water by the backflow of water or other liquids, gases, mixtures, compounds, or other substances into the Public Water Distribution System of the Dover and Foxcroft Water District from a source or sources other than its intended sources.

II. SCOPE

It is the intent of the Dover and Foxcroft Water District that all domestic water services – both new and existing – will be equipped to prevent potential backflow or backsiphonage through the “containment” approach. This requires the installation of an approved backflow prevention device at the water meter by the customer at the customer’s expense. Installation of an approved backflow device is a condition of domestic service with the District.

III. AUTHORITY

This program gains its enforceability from Title 22, M.R.S.A., ss 42(1), 42 (3), 2612(2), and 2612(5), Maine Department of Human Services Cross Connection Rules number 10-144 CMR 226. In addition, authority arises from provisions in the State of Maine Internal Plumbing Code, administered by the Department of Professional and Financial Regulation at 02-395 CMR 4, protecting the public against cross connection hazards associated with fixture isolation.

IV. DEFINITIONS

- A. Anti-backflow assembly – An anti-backflow device with gate valves directly before and after it.
- B. Anti-backflow device - A device or means to prevent backflow.
- C. Antifreeze compounds – Any liquid, chemical or other material used as an antifreeze or heat-exchange medium. Use of antifreeze compounds is limited to propylene glycol and food-safe glycerin; ethylene glycol (automobile antifreeze) is prohibited.
- D. Approved source - A source of water utilized by a public water system for distribution to the public for consumption or other purposes and which is approved by the Department of Health and Human Services for said use following an approved treatment process, if any, required by the Department.
- E. 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.
- F. Backflow preventer - A device or means to prevent backflow, sub defined as follows:
 - 1. Air gap - 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).
 - 2. Atmospheric vacuum breaker - A device which prevents back siphonage by creating an atmospheric vent where there is either a negative pressure or a sub-atmospheric pressure in a water system.
 - 3. Backflow preventer with intermediate atmospheric vent - A device having two check valves separated by an atmospheric vent.
 - 4. Double check valve - A device having two independently acting, approved check valves that are internally loaded with two resilient seated shut-off valves and test cocks for periodic testing. Referred to as a “testable” device by the District; requires permitting by the Supplier.
 - 5. Hose bib vacuum breaker - A device which is permanently attached to a hose bib and which acts as an atmospheric vacuum breaker.
 - 6. Pressure vacuum breaker - A device containing a spring loaded check valve and a spring loaded atmospheric vent which opens when the pressure approaches atmospheric. It contains valves and fittings which allow for periodic testing.
 - 7. Reduced pressure principle backflow preventer (RPZ) - An assembly of check valves and a reduced zone which spills water to the atmosphere in the event of failure of the check valves. It has valves and fittings which allow for periodic testing.
 - 8. Residential dual check valve - An assembly of two independently acting check valves used primarily on residential and low-hazard services. Referred to as “non-testable” devices by the District; does not require permitting by the Supplier.
- G. Back-pressure - A condition where the owner’s system pressure is greater than the supplier’s system pressure, causing a reversal of the normal direction of flow.
- H. Back-siphonage - Backflow resulting from a negative pressure in the distribution pipes of a public water supply system.
- I. Containment - A method of backflow prevention from contamination of the public water system which requires a backflow preventer at the water service entrance.
- J. Contaminant – Any chemical, biological, or radiological substance or matter which is an impairment of the water quality which creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids, or waste.

- K. Cross-connection - Any physical connection or arrangement between two otherwise separate piping systems, one of which contains potable water and the other water or other substances of unknown or questionable safety, whereby water or other substances may flow from one system to the other, the direction of flow depending on the pressure differential between the two systems.
- L. Cross-connection survey – An inspection conducted by the District in order to identify any actual or potential cross-connections, to determine the degree of hazard or potential hazard and appropriate means of backflow prevention, or to confirm compliance with the District’s Cross-Connection Program.
- M. Customer – A person, firm, corporation, or governmental division which has applied for and been granted service, and is responsible for payment of the service.
- N. Department - State of Maine, Department of Health and Human Services, Maine CDC, Division of Environmental Health, Drinking Water Program.
- O. Domestic Service – A water line which supplies potable water for non-fire protection uses, such as drinking, bathing, culinary, heating, and process water purposes.
- P. Fire Service – A water line which supplies water for fire protection to a fire sprinkler or life safety system.
- Q. Fixture isolation - A method of backflow prevention in which a backflow preventer is located to correct a cross-connection at an in-plant unit rather than at the water service entrance. Fixture isolation alone is not deemed an acceptable method of backflow prevention by the District within its distribution system.
- R. 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 the 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 systems which may deteriorate in sanitary quality
 - Chemicals in fluid form
 - Plating acids and alkalis
 - Circulated cooling waters connected to an open cooling tower
 - Cooling waters that are chemically or biologically treated or stabilized
 - Contaminated natural waters such as from wells, springs, streams, rivers, etc. or from irrigation systems or canals
 - Oils, gases, glycerin, paraffins, caustic, and acid solutions or other liquid/gaseous fluids used in industrial or other processes
 - Solutions used for firefighting purposes or systems
- S. Owner - Any individual, tenant, corporation, political body or sub-division or any other entity that has legal title to or license to operate or habitate in a property upon which a cross-connection is present.
- T. Permit - A document issued by the Supplier which allows the use of a backflow preventer based on degree of hazard.
- U. Person - Any individual, partnership, company, public or private corporation, political sub-division or agency of the State, department, or an 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. It’s physical, chemical, bacteriological, and radiological quality conforms to the Maine State Drinking Water Act, or any regulations pertaining thereto.

- Y. Private water source - Any source of water which may or may not be approved by the Department utilized by any Owner for consumptive and/or other purposes, and which is not under the immediate control of the Supplier.
- Z. Public water system - Any publicly or privately owned system of pipes, structures, and facilities through which potable water is sold, furnished, or distributed to the public for human consumption, and which is under control of the Supplier. The system shall not include the portion of service pipe owned and maintained by the Owner.
- AA. Supplier - The Dover and Foxcroft Water District
- BB. Water service entrance - That point at which the Owners water supply system is beyond the sanitary control of the Supplier. This will ordinarily be the outlet of the water meter and will always be before the first branch line.

V. ADMINISTRATION

- A. As required by the State of Maine, the Supplier will operate a cross-connection prevention program, including keeping necessary records, which fulfills the requirements of the Department's Cross-Connection Rules and which is approved by the Department. Modifications to the program may be made from time to time at the Supplier's discretion and submitted to the Department for approval.
- B. An employee of the Supplier or its agent, having properly identified himself, will have free access at reasonable hours to all premises supplied with District water to conduct a cross-connection survey to determine backflow prevention needs and whether the needs have been met by the Customer. Access to the property for a cross-connection survey is a condition of service with the District. The District will determine the appropriate means of backflow prevention based on its approved program, and the Customer will comply with the District's recommendations.
- C. If the supplier requires that the public supply be protected by containment, then the Owner shall be responsible for water quality beyond the outlet end of the containment device.
- D. Both the supplier and the owner shall attempt to eliminate all cross-connections.

VI. RESPONSIBILITY

- A. Supplier's Responsibility
 - 1. The District will maintain a copy of its current approved Cross-Connection Prevention Program, and will make it available to customers on request.
 - 2. The District or its agent will perform inspections for actual or potential cross-connections. The inspections shall be during normal working hours unless otherwise arranged with the Owner.
 - 3. The Supplier shall, after the initial inspection of the Owner's premises, inform the Owner by letter of any correction(s) and the time allowed for the correction(s), which will not be in excess of thirty (30) days.
 - 4. The Supplier 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 is regularly tested and operates satisfactorily. Note: Certain fixtures are exempt from this provision and are listed in Section IX.
 - 5. The Supplier shall inform the Owner by letter of any failure of compliance by the time of the first re-inspection. The Supplier will allow a maximum extension of two calendar weeks for the correction to be made. If there is a failure to comply by the date of the second re-inspection, the Supplier shall inform the Owner by letter that water service to the Owner's premises shall be terminated in accordance with the Supplier's rules and regulations for non-payment.

6. If the Supplier determines at any time that a serious threat to the public health exists, service shall be terminated immediately.
7. Re-establishment of service before the installation of a backflow preventer may be allowed by the Supplier after an agreement has been made between the Supplier, the Owner and/or the Department indicating the intention of the Owner to comply with the provisions of the agreement and after the Supplier determines that no immediate threat to the public health exists.
8. The Supplier shall conduct an initial inspection. The supplier will re-inspection all industrial customers and all commercial customers as deemed necessary.
9. The supplier shall review permits no less than every 5 years.
10. The supplier shall re-inspect facilities any time it changes hands to ensure no changes to potential hazards has changed.
11. The Supplier shall ensure all new construction, including residential, complies with this program.
12. The Supplier shall inspect dwellings with more than four units and require that they comply with this program. Also, the Supplier shall inform the Owners of the dwelling with four or less units of potential hazards of cross-connection, giving examples of possible backflow situations. The Owner of any dwelling residence, institution, or business shall be required to install a backflow preventer in accordance with this program.
13. The Supplier shall be responsible for the administration of this program and for ensuring that periodic testing of all backflow preventers is performed.

B. Owner's Responsibility

1. The Owner, after being informed by a letter from the Supplier shall, at his/her expense, install, maintain, and ensure the testing of any backflow preventer deemed necessary on his/her premises.
2. The Owner shall correct any malfunction of the backflow preventer which is revealed by periodic testing. This includes the replacement of parts or of the backflow preventer if deemed necessary by the Supplier or the Department. Failure to comply with testing, repairing or replacement requirements will result in termination of service, according to the District's Regulations for non-payment.
3. The Owner shall inform the Supplier by letter of any proposed new or modified cross-connections and also of any cross-connections of which the Owner is aware but have not been found by the Supplier's inspection.
4. Any Owner having a plumbed private water source within the building or establishment shall have a reduced pressure principle device installed whether or not the private source is cross-connected to the Supplier's system. Permission may be denied to cross-connect by the Supplier or the Department.
5. The Owner shall not install a by-pass around a backflow preventer unless there is a backflow preventer installed on the by-pass. Owners who cannot shut down for testing must provide additional backflow preventers to allow for the periodic testing of each device.
6. The Owner shall install the backflow preventer in a manner approved by the Manufacturer, Supplier, and/or the Department. Pit installations will not be permitted.
7. If the Owner installs plumbing to provide potable water for domestic purposes on the Supplier's side of a backflow preventer, said plumbing shall also have a backflow preventer.

VII. DEGREE OF HAZARD

Different types of cross-connections constitute different degrees of hazard which are classified as follows, listed with the approved types of devices:

- A. **Low Degree of Hazard** –A pollution hazard, as defined in the Maine State Internal Plumbing Code at 02-395 CMR 4. If backflow were to occur, the resulting health significance would be limited to minor changes in the aesthetic quality such as taste, odor, or color. The foreign substance must be non-toxic and non-bacterial in nature and have no significant health effect.
- B. **High Degree of Hazard** – A contamination hazard, as defined in the Maine State Internal Plumbing Code at 02-395 CMR 4. If backflow were to occur, the resulting effect on the water supply could cause illness or death if consumed by humans. The foreign substance may be toxic to humans either from a chemical, bacteriological, or radiological standpoint and may result from either long or short-term exposure. Toxicity may result from either short or long term exposure.
- C. **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.

VIII. PERMITS

- A. Permits will be issued by the Supplier.
- B. Permits will be issued only if the cross-connection is deemed necessary and cannot be eliminated.
- C. The degree of hazard, testing frequency, type, size, model and make of backflow preventer and any exemptions shall be listed on the permit. If more than one device is used to protect a single cross-connection, they shall all be listed on the permit.
- D. Permits are non-transferable and shall be renewed by the Supplier every five years, if no action is taken then permits are automatically renewed.
- E. The Supplier shall determine the degree of hazard to be listed on the permit.
- F. The Owner shall apply for a permit on appropriate forms to be provided by the Supplier and shall submit said application to the Supplier along with any sketches or plans required by the Supplier.
- G. The Department shall have access to the permits during sanitary surveys and at other times for review.

IX. EXEMPTIONS

- A. Any cross-connection protected against backflow at the time this program becomes effective may continue with the same protection unless:
 - 1. The existing protection is deemed inadequate by the Supplier or the Department.
 - 2. The Department notifies the Supplier, in writing, that a change must be made.
- B. The exemption will expire at any time that the backflow preventer must be replaced. In such cases, the replacement backflow preventer must be of the type required by the degree of hazard.

X. PERIODIC TESTING

It is recognized that any backflow preventer can fail and any method of protection can be subverted. Therefore, periodic testing, depending upon the degree of hazard, and inspections are necessary. This includes all types of backflow prevention. Therefore:

- A. Periodic testing shall be performed by a person who has been certified for testing backflow devices by the New England Water Works Association or the American Backflow Prevention Association and approved by the Dover and Foxcroft Water District. The cost of such testing shall be at the expense of the Owner.
- B. Any backflow preventer which fails during any test shall be immediately repaired. The Supplier shall require that repair parts be ordered by the Owner within twenty-four hours and that shipment is by the most expedient means possible. Any delay or repair for more than four days requires termination of service or some other means to insure the protection of the public water system and the safety of the public health.
- C. Certain situations with a High degree of hazard shall not be allowed to continue unprotected if the backflow preventer fails and cannot be immediately repaired.

Note: It is re-emphasized that in order to minimize down time, the Owner should be encouraged to have replacement or repair parts on hand.

XI. RESIDENTIAL SERVICES

All new residential service connections shall have a State approved dual check backflow preventer installed on the service line before water service is turned on. All existing Residential Services shall be required to have a State approved Dual Check Backflow Preventer installed. Any Residential Service may be required to have a testable backflow preventer installed if deemed necessary by a District inspection.

XII. COMMERCIAL AND INDUSTRIAL SERVICES

All industrial establishments shall have a State approved reduced pressure principle backflow preventer (RPZ) installed on the service line, immediately after the meter and before the first branch line.

All commercial establishments shall have a State approved backflow preventer installed on the service line, immediately after the meter and before the first branch line. The type of device shall be determined by the actual or potential degree of hazard.

XIII. FIRE PROTECTION SERVICE LINES

New service lines with direct connection from the utilities water mains only and having no pumps, tanks, or reservoirs and without any physical connection from other water supplies and not having any anti-freeze or other additives and all sprinkler drains discharging to atmosphere shall have a State approved inline testable double check valve assembly installed on the service line and before the first branch line.

New service lines with direct connection from the utilities water mains and having any one or all of the following: elevated storage tanks, fire pumps taking suction from above ground covered reservoirs or tanks and provided these storage facilities are filled with public water only and that the water in the tanks are kept in a potable condition shall have a State approved double check valve assembly installed on the service line that is connected to the utilities water main and before the first branch line.

New service lines with direct connection from the utilities water mains and interconnected with auxiliary supplies, such as, pumps taking suction from rivers, ponds, wells, or reservoirs exposed to contamination, or where antifreeze is added and other industrial water systems shall have a State approved reduced pressure zone principal backflow preventer installed in such a manner as to protect the public water system.

In such instances where protection of the public water supply is needed from fire protection service lines, and such requirements are not included in the above, the Utility will assess the degree of protection required. If any modification or renewals to an existing sprinkler service is made, then at that time an appropriate State approved in line testable backflow preventer shall be installed. Note: The owner shall be responsible for any system redesigning that will be required to insure adequate flows for fire protection.

Note: Fire lines shall not have strainers installed before the Backflow Preventer.

XIV. 13D and LIFE SAFETY SYSTEMS

- A. If the customer's domestic supply line is used without a separate branch line for the sprinkler heads, then a State approved double check valve assembly shall be installed after the meter and before the first branch line.
- B. If a branch line is used to service the sprinkler heads only, and is dead ended, then a State approved double check valve assembly shall be installed on that branch line.

I. TYPE OF BACKFLOW PREVENTION REQUIRED

A State approved backflow prevention device, per the requirements of the Current Maine State Internal Plumbing Code 02-395 CMR 4, shall be installed on each domestic water service line to the following types of facilities. This list is a guideline and should not be construed as being complete. Table 6-2 of Section 6 of the Maine State Internal Plumbing Code specifically lists these devices.

<u>Type of Facility</u>	<u>Type of Protection</u>
Auxiliary Water Systems-Connected or not	RP
Barber/Beauty Shop	RP/DC/RDC*
Beverage Bottling Plants	DC
Car Wash	RP
Cemeteries	RP
Chemical Plants	RP
Dairies	DC/RP
Dental Office	RP
Dry Cleaners	RP
Film Laboratory or Processing Plant	RP
Florist Shop, with irrigation and plant growth	RP
Florist Shop, without irrigation and plant growth	DC/RDC
Food Processing	DC/RP
Gas Station, pumps only	DC
Garage for equipment and vehicle repair	RP
Hospitals, Clinics, Medical Buildings	RP
Laundries with dry cleaning	RP
Laundries without dry cleaning	DC
Metal Plating and Processing Plant	RP
Morgues or Mortuaries	RP
Nursing Homes	RP
Office Buildings	RP/DC/RDC
Petroleum Storage Yard	RP
Piers, Docks, Waterfront Facilities	RP
Print Shops	RP
Restaurants with Soap Eductors and/or Industrial Type Disposal	RP
Sand and Gravel Plants	RP
Single Family Residential	RDC
Sprinkler or Irrigation Systems	RP
Swimming Pools	RP
Sewage Treatment Plants	RP
Sewage Treatment Pumping Stations	RP
Tanneries	RP
Veterinary Establishments	RP
DC – Double Check Valve Assembly	
RP – Reduced Pressure Zone Principal Device	
RDC – Residential Dual Check	

CROSS CONNECTION CONTROL PROGRAM

Dover and Foxcroft Water District

Approved by the Dover and Foxcroft Water District Board of Trustees

Signed: _____

Date: _____

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Date: _____

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