



Cross-Connection Control Policy

PURPOSE:

Cross-connections between water supplies and non-potable sources of contamination represent one of the most significant threats to health in the water supply industry. This program is therefore designed to maintain the safety and potability of the water in the Kennebec Water District's (District) system by preventing the introduction of any foreign liquids, gases, and substances other than water from the intended sources and to provide protection from actual or potential cross-connections.

SCOPE:

All water services served by the District, both new and existing, shall be equipped with a containment device to prevent potential backflow or backsiphonage. This requires the installation of an approved backflow prevention device immediately downstream of the water meter at the customer's expense. Fixture isolation is not an acceptable method of backflow prevention. Installation of an approved backflow device is a condition of service with the District as specified by the District's Terms and Conditions. Fire sprinkler and life safety systems are addressed under the "Miscellaneous" section of this program.

AUTHORITY:

This program derives its authority from 10-144A Chapter 226 State of Maine Cross Connection Rules as authorized by 22 MRS 2612 (2) & (5) and from the 02-395 Chapter 4 Installation Standards, (also known as Maine State Internal Plumbing Code).

DEFINITIONS:

- A. 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.

- B. Backflow: The flow of water or other foreign liquids, gases, or other substances or materials of any kind in any form into the distribution system of a public water supply from any source other than the intended.

- C. Backflow preventer: A device to prevent backflow.
 - 1. Double Check Valve (DC): 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. A DC is referred to as a "testable" device by the District.

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2. Dual Check Valve: A device having two independently acting, approved check valves. Used primarily in residential and low hazard situations. Referred to as a "non-testable" device by the District.
 3. Reduced Pressure Zone Backflow Preventer (RPZ): An assembly of check valves and a reduced pressure zone which spills water to the atmosphere in the event of the failure of the check valves. An RPZ has valves and fittings which allow the device to be tested and is referred to as a "testable" device by the District.
 4. Approved device: A backflow prevention device approved by the District.
- D. Backsiphonage: Backflow resulting from negative or less than atmospheric pressure in the water system.
- E. Backpressure: A condition in which the customer's system pressure is greater than the supplier's system pressure.
- F. Containment: A method for protecting a supplier's public water system from contamination by a facility with internal cross connections.
- G. 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.
- H. Cross-Connection: A cross-connection is any connection or arrangement between a potable water supply system and any plumbing fixture, tank, or any receptacle, through which it may be possible for non-potable, used, unclean, polluted, contaminated water, and/or other substances to enter into any part of such potable water system under any condition. It is not necessary for contamination or backflow to have actually occurred. A cross-connection is simply the connection through which it may be possible for backflow or contamination to occur.
- I. Customer: A person, firm, corporation, or governmental division which has applied for and been granted service and is responsible for payment of the service.
- J. Department: Maine Department of Health and Human Services
- K. District: Kennebec Water District

- L. Domestic service: A water line which supplies potable water for non-fire protection uses such as drinking, bathing, culinary, heating, and process water purposes.
- M. Fire service: A water line which supplies water for fire protection to a fire sprinkler or life safety system.
- N. Fixture isolation: A method for the prevention of contamination by cross connections within a facility served by a public water system. Fixture isolation alone is not deemed an acceptable method of backflow prevention by the District within its distribution system. Fixture isolation shall be the responsibility of the Owner per the State of Maine plumbing code.
- O. 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, paraffin, caustic, and acid solutions or other liquid/gaseous fluids used in industrial or other processes
 - solutions used for firefighting purposes or systems
- P. NFPA: National Fire Protection Association.
1. NFPA 13: Standard for the Installation of Sprinkler Systems
 2. NFPA 13r: Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies
 3. NFPA 13d: Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes

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- Q. Owner: One in whom the legal title to real estate is vested or who is recognized and held responsible by law as the Owner of real property.
- R. Person: Any individual or entity including, without limitation, a partnership, company, public or private corporation, association, political subdivision or agency of the State, Department, Agency, or instrumentality of the United States.
- S. Plumbing System: All potable water supply and distribution pipes, all plumbing fixtures and traps, all drainage and vent pipes, and all building drains, including their respective joints and connections, devices, receptacles and appurtenances within the property lines of the premises and shall include potable water piping, potable water treating or using equipment, and water heaters.
- T. Seasonal Meter: A meter which is set for a limited portion of the year (such as for the summer).

ADMINISTRATION:

- A. As required by the State of Maine, the District will operate a cross-connection control program, including keeping necessary records, which fulfills the requirements of the Department's Cross-Connections Rules and which is approved by the Department. Modifications to the program may be made from time to time at the District's discretion and submitted to the Department for approval.
- B. An employee of the District or its agent, having properly identified themselves, 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 requirements.
- C. The District generally refers to dual check backflow prevention devices as "low hazard" or "non-testable" devices. The District generally refers to double check (DC) and reduced pressure zone (RPZ) backflow prevention devices as "high hazard" or "testable" devices because these devices have ports used to test and verify proper operation. Testing of DC and RPZ devices is required at least annually, however the District may require more frequent testing depending on the degree of hazard.
- D. If the District determines at any time that an imminent threat to public health exists, service will be terminated immediately and without written warning.

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- E. Re-establishment of service before the installation of a backflow preventer may be allowed by the District if the imminent threat to public health has been eliminated and after an agreement has been signed between the District and the Customer indicating the intention of the Customer to comply within a timeframe established by the District.
- F. The District will ensure that all services comply with the Cross-Connection and Backflow Prevention Program. The District may require the customer to furnish a copy of the plumbing system plan, survey, specifications, and/or drawings prior to providing water service.
- G. The District will maintain a copy of its current approved Cross-Connection and Backflow Prevention Program and will make it available to customers upon request.

RESPONSIBILITIES:

KWD Responsibilities:

A. Inspection

1. The District or its agent will perform inspections for actual and potential cross-connections. These inspections will be made during normal working hours unless, at the discretion of the District, other arrangements are necessary.
2. The District or its agent will, after the inspection of premises and/or review of plans or third-party inspection reports, notify the Customer of any necessary correction(s), the time allowed for correction(s), and any additional customer responsibility such as required testing.
3. The required correction(s) will be based on the hazards and/or potential hazards observed during the inspection and the current use of the service. An upgrade of the backflow prevention device may be required to accommodate a high hazard should new information be received or observed during inspection or a change in use occur. A downgrade in backflow prevention must be approved by the District.
4. The customer shall notify the District after corrections are made to schedule an inspection.

B. Testing

1. All devices must be tested at least annually. The District will maintain a testing schedule and will notify customers of the testing deadline, in writing, 30 days or more before the specified deadline.

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2. If a backflow preventer fails during testing, the customer shall ensure that repair parts are ordered within 24 hours and shipment be made by the fastest means possible. Furthermore, any extended delay, more than seven (7) days, may require discontinuance of service or other means to ensure protection of the public water system. Certain high degree of hazard situations, which in the District's determination pose a threat to public safety, will not be allowed to continue unprotected if the backflow preventer fails the test and cannot be immediately repaired. The District does not perform repairs on backflow preventers, and the Customer is responsible for the provision of spare parts and should have a supply on hand.
3. Failure to comply with any of the testing requirements is grounds for discontinuance of service.
4. Backflow preventer testing shall be completed by individuals certified to test backflow prevention devices by the New England Water Works Association or the American Backflow Prevention Association.
5. The District reserves the right to observe testing as performed by any certified individual.
6. The District reserves the right to increase the frequency of testing based on the type of hazard.

C. Disconnection

1. The District will issue an initial written notice to the Customer of any failure to comply with the provisions, including installation, permitting, testing, and maintenance, in this program and will allow up to 30 calendar days for compliance unless another deadline is specified.
2. If the customer fails to comply, the District will commence disconnection proceedings in the manner specified under Chapter 660 of the Maine Public Utilities Commission regulations and the District's Terms and Conditions of service.
3. If the District determines that an imminent threat to public health exists, service will be terminated immediately and without written warning.
4. Extensions may be granted to Customers in compliance with the following:
 - a. The extension will not result in unreasonable risk to public health within the period of the extension.

- b. The Customer is unable to comply with the regulations due to compelling factors, NOT exclusively economic.
- c. The request for time extension must be in writing.
- d. The District may require operational modification to reduce the risk of backflow or backsiphonage during the extension period.
- e. Extensions shall be for no more than 30 days.
- f. Failure to meet the terms of the extension will result in disconnection proceedings.

Customer Responsibilities:

- A. The Customer at their own expense will install, maintain, and test as required, an approved backflow preventer immediately downstream of the water meter. This is a condition of service with the District. New customers shall have the required backflow prevention device in place prior to the district initiating service.
- B. The Customer will only install backflow preventers approved by the District and in a manner approved by the District. All backflow devices shall be installed directly after the water meter and before any unprotected branches.
- C. Customers with a service requiring a testable backflow device must have a certified tester on site at the time of the meter set to perform the test.
- D. Backflow prevention device tests shall be completed by a certified tester and reported to the District, including the tester's name and certification number. Incorrect or incomplete forms will be returned, and a retest may be required.
- E. The Customer will correct any malfunction of the backflow preventer revealed by periodic testing or by device failure. Regarding backflow preventers which fail during testing, see KWD Responsibilities D. Extensions.
- F. The Customer shall inform the District of any new, potential, proposed, or existing cross-connection which the Customer is aware of, but which has not been found by the District.
- G. The Customer shall not install a by-pass around any backflow preventer unless there is an approved backflow preventer on the by-pass. Customers who cannot shut down operation for testing must supply the additional devices necessary to allow testing to take place.

DEGREE OF HAZARD:

The District recognizes the differences in the threat to the public water system arising from different types of connections. These can be classified as follows:

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- A. Low Degree of Hazard: If backflow were to occur, the resulting health effect would be limited to minor changes in aesthetic quality such as taste, odor, or color. The foreign substance must be non-toxic and have no significant health effect.
- B. High Degree of Hazard: 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, chemically, bacteriologically, or radiologically. Toxicity may result from either short- or long-term exposure.

Water Use	System / Degree of Hazard	Category: Device	
		Residential	Non-Residential
Domestic Water	Low Hazard	Non-Testable*	Non-Testable*
	High Hazard*	Testable	Testable
Irrigation Water	Dedicated landscape Irrigation	Testable	Testable
Fire Service	NFPA 13/13R	Testable	Testable
	NFPA 13 (with chemical agents)	Testable	Testable
	NFPA 13D	Non-Testable	N/A

Backflow protection devices listed above are considered the minimum standard for the assumed degree of hazard. The District will evaluate each water system as necessary to determine appropriate degree of hazard present.

*The District considers the following installations to warrant a High Hazard classification:

- Domestic service connections (residential and non-residential) two-inch diameter or larger (size of the tap at the water main)
- Sewage Treatment Plants and Pump Stations
- Waste Dump Stations
- Hazardous Material Sites
- Mortuaries
- Hospitals
- Dental Facilities
- Medical Centers
- Laboratories
- Veterinary Clinics
- Food Processing and Beverage Bottling Facilities
- Dry Cleaners
- Car Wash Facilities
- Processing Plants/Facilities
- Auxiliary Water Supplies
- Metal Plating Facilities
- Restricted Access Facilities
- Horticulture using chemicals
- Others as determined by KWD

DEVICE REQUIREMENTS FOR HIGH HAZARD CONNECTIONS:

Unless otherwise indicated below, RPZ devices shall be used for high hazard connection.

A DC device may be approved for use at a high hazard connection for the following circumstances:

- Private fire protection meeting the NFPA 13/13R requirements
- Installation in pits or locations susceptible to flooding
- Other instances, as approved by the District

MISCELLANEOUS:

1. Sprinkler policy: Fire services or life safety systems installed or modified after June 30, 1987 having fire department connections must be protected by at least an approved double check device. Systems containing industrial fluids must be protected with an approved RPZ backflow prevention device. Fire protection service lines dedicated for private fire hydrants only are not required to have backflow preventers installed on the service line.
2. Wells: Any Customer having a private well or other private water source must demonstrate to the District’s satisfaction that they are not connected in any way to the same infrastructure supplied by the District, or a testable backflow device will be required. Permission to cross-connect may be denied by the District.
3. Pits: The installation of water meters and/or backflow devices in a pit or vault must receive approval from the District. Pits must meet District specifications.

ASSOCIATED DOCUMENTS: None

SUPERCEDED DOCUMENTS: None

RETENTION:

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1. This document is retained per the KWD Record Retention Schedules.

REVISION LOG:

Section	Page	Rev.	Date	Description Of Change	Approved by:

APPENDICES: None