

MADAWASKA WATER DISTRICT

66 Main Street

Madawaska, Maine 04756

Phone: 207-728-3859 Fax: 207-728-6311

customerservice@madwater.me

[Website: madwaterdistrict.com](http://madwaterdistrict.com)

Board of Trustees:

Clifford Cyr, Chairman

Joel Dechaine

Gerald Dufour

Superintendent: Steven Bechard

Office Manager: Sam Cyr

Clerk: Diesie Gullick

CROSS-CONNECTION CONTROL PROGRAM

for the

MADAWASKA WATER DISTRICT MADAWASKA, MAINE

AS ADOPTED BY THE BOARD OF TRUSTEES

EFFECTIVE MARCH 1, 2023

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1. Purpose	1
2. Scope	1
3. Authority	1
4. Definitions	2, 3 & 4
5. Administration	4
6. Responsibility	4 & 5
7. Degree of Hazard	6
8. Periodic Testing	7
9. Residential Services	7
10. Commercial & Industrial Services	7
11. Fire Protection Service Lines	8
12. 13D & Life Safety Systems	8
13. Types of Backflow Prevention Required	9
 BOARD APPROVAL	 10

*Cross Connection program originally adopted by the Madawaska Water District Board of Trustees on March 18, 1998; revised April 27, 2016; revised February 13, 2023

I. PURPOSE

This program is designed to prevent 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 Madawaska Water District from a source or sources other than its intended sources.

II. SCOPE

It is the intent of the Madawaska Water District that all water services – both new and existing – will be equipped to prevent potential backflow or back siphonage through the “containment” approach. This requires the installation of an approved backflow prevention device at the water meter by the Owner and at the Owner’s expense. Installation of an approved backflow device is a condition of 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. Antifreeze– Any liquid, chemical or other material used to lower the freezing point of water or as a heat- exchange medium. Use of antifreeze is limited to propylene glycol and food-safe glycerin; ethylene glycol (automobile antifreeze) is prohibited.
- B. Backflow - The undesirable reversal of the flow of water or mixtures of water and other liquids, gases, or substances into the distribution pipes of a potable water supply from any source or sources other than the public water system’s approved potable water supply.
- C. Backflow preventer - A device designed 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 the flood level of 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 or one inch (2.54 cm) whichever is greater.
 - 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. Dual check valve with atmospheric vent - A device having two independently acting, approved check valves that are internally spring loaded and separated by an atmospheric vent.
 - 4. Double check valve assembly (DCVA) - A device having two independently acting, approved check valves that are internally spring loaded with two resilient seated shut-off valves and test cocks for periodic testing. Referred to as a “testable double check” device by the District.
 - 5. Pressure vacuum breaker (PVB) - A device containing a spring-loaded check valve which opens when the discharge pressure approaches atmospheric conditions. It contains valves and fittings which allow for periodic testing.
 - 6. Reduced pressure zone assembly (RPZ) - A device having two independently acting, approved check valves that are internally spring loaded separated by an intermediate chamber (or zone) with two resilient seated shut-off valves and test cocks for periodic testing. Referred to as an “RPZ” device by the District.
 - 7. Dual check valve (RDC) - A device having two independently acting, approved check valves that are internally spring loaded . Referred to as “non-testable” devices by the District.
- D. Back-pressure - A condition where the Owner’s system pressure is greater than the potable water system pressure, causing a reversal of the normal direction of flow.
- E. Back-siphonage - A reversal of normal flow in a system caused by a negative pressure (vacuum or partial vacuum) in the potable water supply system.
- F. Containment - A method of backflow prevention from contamination of the public water system which requires a backflow preventer be located at the water service entrance before any other branches or connections to the building, facility, home, etc.
- G. Contaminant – Any chemical, biological, or radiological substance or matter which is an impairment of the water quality to which it’s introduced.

- H. Cross-connection - Any actual or potential connection or arrangement between two otherwise separate piping systems, one of which contains potable water and the other either contains water of unknown or questionable safety or other possible sources of contaminants.
- I. Cross-connection inspection – An inspection conducted by the District of an Owner's building, facility, home, etc. in order to identify any actual or potential cross-connections to determine the degree of hazard or potential hazard and appropriate means of containment to confirm compliance with the District's Cross-Connection Control Program.
- J. Department - State of Maine, Department of Health and Human Services, Maine CDC, Division of Environmental Health, Drinking Water Program.
- K. 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.
- L. Owner - Any individual, tenant, corporation, political body, sub-division or any other entity that has legal title to or license to operate or habitat in a property.
- M. 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 with the Maine State Drinking Water Act, or any regulations pertaining thereto.

- N. 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 District.
- O. 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 District. The system shall not include the portion of service pipe owned and maintained by the Owner.
- P. District – The Madawaska Water District

V. ADMINISTRATION

- A. As required by the Department, the District 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 District's discretion and submitted to the Department for approval.
- B. An employee of the District or its agent, having properly identified himself, will have free access at reasonable hours to all premises supplied with District's water to conduct a cross-connection survey to determine backflow prevention needs and whether the needs have been met by the Owner. 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 Owner will comply with the District's recommendations.
- C. Both the District and the Owner shall attempt to eliminate all cross-connections.

VI. RESPONSIBILITY

- A. District's Responsibility
 - 1. The District will maintain a copy of its current approved Cross-Connection Prevention Program, and will make it available upon 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 District 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).
 - 4. The District will not allow any cross-connection to remain unless it is protected by an approved backflow preventer which is regularly tested and operates satisfactorily. The District shall allow the Owner reasonable time to comply with the District's letter of corrective action. If the Owner fails to comply, the water service to the premises shall be terminated in accordance with the Districts disconnection rules.

5. If the District determines at any time that a serious threat to the public health exists, service shall be terminated immediately.
6. Re-establishment of service before the installation of a backflow preventer may be allowed by the District after an agreement has been made between the District and the Owner indicating the intention of the Owner to comply with the provisions of the agreement and after the District determines that no immediate threat to the public health exists.
7. The District shall ensure all new construction complies with this program.
8. The District 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 District 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. This includes the replacement of parts or of the backflow preventer if deemed necessary by the District. All testing, repairs or replacements shall be conducted by licensed technicians. Failure to comply with testing, repairing or replacement requirements may result in termination of service, according to the District's disconnection rules.
3. The Owner shall inform the District by letter of any proposed new or modified cross-connections and of any cross-connections of which the Owner is aware but have not been found by the District's inspection.
4. Any Owner having a private water source on the property shall have a Reduced Pressure Zone device installed whether or not the private source is cross- connected to the District's system. Permission may be denied to cross-connect by the District.
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 with critical water service needs who cannot shut down for testing or repairs are encouraged to install a by-pass.
6. The Owner shall install the backflow preventer in a manner approved by the backflow Manufacturer, the Plumbing Code, and the District. New pit installations are not permitted.
7. If the Owner installs plumbing to provide potable water for domestic purposes on the District'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. Class 1 – 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. The allowed devices are: Air gap, atmospheric vacuum breaker, dual check valve, dual check valve with atmospheric vent, pressure type vacuum breaker, double check valve assembly and reduced pressure zone devices.
- B. Class 2 - Moderate Degree of Hazard - If backflow were to occur, the resulting effect on the water supply would be significant changes in esthetic qualities. The foreign substance must be non-toxic to humans and non-bacterial in nature, either in short- or long-term exposure. The allowed devices are: Air gap, pressure type vacuum breaker, double check valve assembly and reduced pressure zone devices.
- C. Class 3 – 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. The allowed devices are: Air gap and reduced pressure zone devices.

VIII. PERIODIC TESTING AND REPAIRING

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 is currently certified for testing backflow devices by the New England Water Works Association or the American Backflow Prevention Association and approved by the Madawaska Water District. The cost of such testing shall be at the expense of the Owner.
- B. Any backflow preventer which fails during any testing shall be immediately repaired. If the parts are not immediately available, the District shall require that repair parts be ordered within twenty-four hours and that shipment is by the most expedient means possible. Any unreasonable delay may require termination of service or some other means to insure the protection of the public water system and the safety of the public health.

Note: It is suggested that in order to minimize down time, the Owner should have replacement or repair parts on hand.

IX. RESIDENTIAL SERVICES

All new or existing residential service connections shall have a State approved Dual Check Backflow Preventer installed on the service line, immediately after the meter and before the first branch line.. Any Residential Service may be required to have a testable backflow preventer installed if deemed necessary by a District inspection.

X. COMMERCIAL AND INDUSTRIAL SERVICES

All new or existing commercial and industrial 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 as determined by the District.

XI. FIRE PROTECTION SERVICE LINES

All new fire protection services shall have a State approved backflow preventer installed on the service line before the first branch line. The type of device shall be determined by the actual or potential degree of hazard as determined by the District.

If any modification or renewals to an existing sprinkler service is made, then at that time, an appropriate State approved backflow preventer shall be installed. The type of device shall be determined by the actual or potential degree of hazard as determined by the District. Note: The Owner shall be responsible for any system redesigning that will be required to insure adequate flows for fire protection.

XII. 13D and LIFE SAFETY SYSTEMS


- A. If the Owner's domestic supply line is used without a separate branch line for the sprinkler heads and no other hazards are present on the property, then a State approved dual 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, then a State approved double check valve assembly shall be installed on that branch line.

XIII. 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. Any devices installed after July 1, 2012 must be NSF 61 certified for lead content. 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	RPZ
Apartment Buildings (up to and including 4 units)	DCVA/RDC
Apartment Buildings (more than 4 units)	DCVA/RPZ
Barber/Beauty Shop	RPZ/DCVA
Beverage Bottling Plants	RPZ/DCVA
Car Wash	RPZ
Cemeteries	RPZ
Chemical Plants	RPZ
Dairies	-RPZ
Dental Office	RPZ
Dry Cleaners	RPZ
Film Laboratory or Processing Plant	RPZ
Florist Shop, with irrigation and plant growth	RPZ
Florist Shop, without irrigation and plant growth	DCVA/RDC
Food Processing	DCVA/RPZ
Gas Station, pumps only	DCVA
Garage for equipment and vehicle repair	RPZ
Hospitals, Clinics, Medical Buildings	RPZ
Laundries with dry cleaning	RPZ
Laundries without dry cleaning	DCVA
Metal Plating and Processing Plant	RPZ
Morgues or Mortuaries	RPZ
Nursing Homes	RPZ
Petroleum Storage Yard	RPZ
Piers, Docks, Waterfront Facilities	RPZ
Print Shops	RPZ
Restaurants with Soap Eductors and/or Industrial Type Disposal	RPZ
Sand and Gravel Plants	RPZ
Single Family Residential	RDC
Sprinkler or Irrigation Systems	RPZ
Swimming Pools	RPZ
Sewage Treatment Plants	RPZ
Sewage Treatment Pumping Stations	RPZ
Tanneries	RPZ
Veterinary Establishments	RPZ

APPROVED BY THE BOARD OF TRUSTEES
OF THE MADAWASKA WATER DISTRICT ON 02/13/2023
WITH AN EFFECTIVE DATE OF MARCH, 1, 2023


_____, Chairman


_____, Trustee


_____, Trustee