# Rye Water District Cross-Connection Control Program

## I. Purpose

Cross-Connections between water supplies and non-potable sources of contamination are significant threats to health in the water supply industry. This ordinance is designed to maintain the safety and potability of the water in the Rye Water District system by establishing rules and procedures to prevent the contamination of public drinking water by the backflow of water from an approved source or other fluids.

**A.** The purpose of this regulation is:

1. To protect the public water supply of the Rye Water District system from the possibility of contamination by isolating contaminants which could backflow or back-siphon into the public water system within its customers' internal distribution system(s);

2. To promote the elimination or control of cross-connections, actual or potential, between its customers' in-plant drinking water system(s) and anything that could contaminate or pollute it; and

3. To provide for the maintenance of a cross-connection control program to effectively prevent the contamination or pollution of all drinking water systems.

4 **To implement the rules specified in New Hampshire Code of Administrative Rules, Part Env-Dw 505, Backflow Prevention.**

## II. Authority

**A.** New Hampshire Code of Administrative Rules, Env-Dw 505, Backflow Prevention. Any changes to this document must be approved by the New Hampshire Department of Environmental Services (NHDES).

**B** The Rye Water District adopted rules and regulations.

## III. Requirements

The Rye Water District Superintendent shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow or back-siphonage of contaminants or pollution through the water service connection. If, in the judgment of the water Superintendent, an approved backflow prevention device is required at the Rye Water District water service connection to a customer's premises for the safety of the water system, the water Superintendent or his designated agent shall give notice, in writing, to said customer to install an approved backflow prevention device at each service connection to their premises. The customer shall, within 30 days, install approved device or devices at his own expense. Failure, refusal, or inability on the part of the

customer to install said device or devices within 30 days shall constitute grounds for discontinuing water service to the premises until such device or devices have been properly installed.

## IV. Definitions

**A.** Approved Backflow Prevention Device – A backflow prevention device that has been:

1. Manufactured to allow for accurate testing and inspection so as to allow verification of performance; and

2. Tested and certified by the University of Southern California, Foundation for Cross-Connection Control and Hydraulic Research.

**B.** Auxiliary Water Supply – Any water supply on or available to the premises other than the purveyor's approved public potable water supply.

**C.** Backflow – The flow of water or other fluids, mixtures or substances into the distribution pipes of a potable water system from any source other than the intended approved source of supply.

**D.** Backflow Preventer – A device or means designed to prevent backflow or back-siphonage thru the use of one of the following:

1. Air Gap – A physical separation sufficient to prevent backflow between the free-flowing discharge end of the potable water system and any other system. Physically defined as a vertical distance equal to twice the diameter of the supply pipe but not less than one inch.

2. Atmospheric Vacuum Breaker – A device which prevents back-siphonage by creating an atmospheric vent when there is either a negative pressure or sub-atmospheric pressure in a water system.

3. Barometric Loop – A fabricated piping arrangement rising at least 35 feet at its topmost point above the highest fixture it supplies. It is utilized in water systems to protect against back-siphonage.

4. Double Check Valve Assembly – An assembly of two independently operating spring loaded check valves with tightly closing shut-off valves on each side of the double check valve, plus properly located test cocks for the testing of each check valve.

5. Dual Check Valve with Intermediate Atmospheric Vent – A device having two independently operating spring loaded check valves separated by an atmospheric vent chamber.

6. Hose Bib Vacuum Breaker – A device which is connected to a hose bib and which acts as an atmospheric vacuum breaker. Not to be used under constant pressure.

7. Pressure Vacuum Breaker – A device containing one or two independently operated spring loaded check valves and an independently operated spring loaded air inlet valve located on the discharge side of the check valve(s). The device includes tightly closing shut-off valves on each side of the check valve(s) and properly located test cocks for the testing of the assembly.

8. Reduced Pressure Principle Backflow Preventer – An assembly consisting of two independently operating spring loaded check valves with an automatically operating differential relief valve located between the two check valves, tightly closing shut-off valves on each side of the check valves plus properly located test cocks for the testing of the check valves and the relief valve.

9. Residential Dual Check – An assembly of two spring loaded independently operating check valves. Generally employed immediately downstream of the water meter to act as a containment device in a single or two family residence.

**E.** Backpressure – A condition in which the owner's system pressure is greater than the supplier's system pressure.

**F.** Back-Siphonage – The flow of water or other fluids, mixtures or substances into the distribution pipes of a potable water system from any source other than its intended source caused by the sudden reduction of pressure in the public water system.

**G.** Containment – A method of backflow prevention which requires a backflow prevention device at the water service entrance.

**H.** Contaminant – A substance that may impair the quality of the water creating a potential health hazard to the public.

**I.** Cross-Connection – Any actual or potential connection between the public water system and any source of contamination or unapproved water source.

**J.** Fixture Isolation – A method of backflow prevention within a facility in which a backflow preventer, such as a hose bib vacuum breaker or an atmospheric vacuum breaker, is located to correct a cross-connection at within the facility rather than at a water service entrance. This protects the drinking water within the building.

**K.** Owner – Any person who has legal title to, or license to operate or habitat in, a property upon which a cross-connection inspection is to be made or upon which a cross-connection may be present.

**L.** 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.

**M.** Water Service Entrance – That point at which the owner's water supply connection lies beyond the control of the Rye Water District; generally considered to be the outlet end of the water meter or where the water service first enters the building.

**N.** Water Superintendent – The official, or his delegated representative, in charge of the Rye Water District system who is vested with the authority and responsibility for the implementation of an effective cross-connection control program and for the enforcement of the provisions of this ordinance.

**O.** Water Supplier – The Rye Water District Rye Water District.

## V. Administration

**A.** The Rye Water District will manage the cross-connection control program. To including the keeping of necessary records to fulfill the requirements of NHDES's Backflow Rules and Regulations.

**B.** The owner shall allow the Rye Water District system to inspect their property for possible cross-connections and shall follow the provisions of the Rye Water District's Cross-Connection Control Program.

**C.** In cases where the Rye Water District requires that the public supply be protected by containment, the owner shall be responsible for the water quality beyond the outlet end of the containment device and should utilize the appropriate device approved for that purpose.

## VI. Responsibilities

### A. Rye Water District

1. On new installations, the Rye Water District will provide an on-site evaluation and/or inspection and review of plans in order to determine the type of backflow preventer, if any, that will be required.

2. On new backflow prevention device installations, the Rye Water District will issue a permit and perform inspection and testing.

3. For premises existing prior to the start of this program, the Rye Water District will:

   **a.** Perform an assessment of the function of the premise and determine if it poses a cross-connection risk. If a risk is present, assess the risk as high hazard or low hazard.

   **b.** Inform the owner in writing of any corrective action deemed necessary, the method of achieving the correction, and the time allowed for the correction to be made. Ordinarily, 30 days will be allowed. However, this time period may be

shortened depending upon the degree of hazard involved and the history of the device(s) in question.

4. The Rye Water District will not allow any cross-connection to remain unless it is isolated by an approved backflow prevention assembly, commensurate with the degree of hazard, for which a permit has been issued and which will be regularly inspected/tested to ensure satisfactory operation.

5. The Rye Water District shall inform the owner in writing of any failure to comply and the time allowed for the correction to be made. If upon re-inspection the owner has not complied, the Rye Water District may allow an additional 15 days for the correction. In the event the owner fails to comply with the necessary correction by the time of the second re-inspection, the Rye Water District will inform the owner, by certified letter, that the water service to the owner's premises will be terminated within a period not to exceed five days. In the event that the owner informs the Rye Water District of extenuating circumstances as to why the correction has not been made, a time extension may be granted by the Rye Water District.

6. If the Rye Water District determines at any time that an imminent or serious threat to the public health exists, the water service shall be terminated immediately.

7. The Rye Water District shall begin inspections to determine the nature of existing hazards and corrections to be made, following approval of the program by NHDES. Initial focus will be on high hazard water use.

8. Backflow prevention device inspectors must be certified through the NEWWA Certified Backflow Prevention Device Inspectors/Testers Program.

9. The Rye Water District shall also develop installation standards and specifications for each type of backflow preventer to ensure they are installed in a manner in which they have been evaluated and approved and to allow for periodic testing and maintenance. See sec. (XV)

**B. Owner**

1. The owner shall be responsible for the elimination or isolation with the proper installation of an approved backflow prevention device commensurate with the degree of hazard, for all cross-connections on his premises.

2. The owner, after having been informed by a letter from the Rye Water District, shall, at his expense, install, maintain, inspect or have inspected and report results (as determined by the Rye Water District), for all backflow preventers on his premises.

3. The owner shall correct any deficiency of a backflow preventer which are revealed by inspection or testing. This may include the replacement of parts or the replacement of the backflow preventer, if deemed necessary by the Rye Water District.

4. The owner shall inform the Rye Water District of any proposed or modified cross-connections and also existing cross-connections for which the owner is aware of but has not been identified by the Rye Water District.

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 by-pass. Owners who cannot shut down operations for inspecting of the device(s) must supply additional devices necessary to allow inspections to be accomplished.

6. The owner shall install backflow preventers in a manner and location approved by the Rye Water District. See sec. (XV)

7. The owner shall only install approved backflow preventers from a list adopted by the Rye Water District and NHDES.

8. Any owner having a private well or other private water source, such, as but not limited to, Geo-Thermo well, irrigation system well, etc., must:

   **a.** Have a permit if the well or source is cross-connected to the Rye water District's system. Permission to cross-connect may be denied by the Rye Water District. The owner may be required to install a Rye Water District approved backflow preventer at the service entrance if a private water source is maintained, even if it is not cross-connected to the Rye Water District's system.

   **b.** In the event the owner installs plumbing to provide drinking water for domestic purposes which is on the Rye Water District's side of the backflow preventer, such plumbing must have its own backflow preventer installed.

9. The owner shall be responsible for the payment of all fees for permits, annual or semi-annual device inspections, re-testing in the case that the device fails to operate correctly, and re-inspections for non-compliance with the Rye Water District or NHDES requirements.

## VII. Degree of Hazard

The Rye Water District recognizes there are threat to the public water system arising from cross-connections. All threats potential are to be classified by degree of hazard and will require the installation of approved backflow prevention devices as appropriate for the degree of hazard.

### A. Low Degree of Hazard

If backflow were to occur, the resulting effect on the water supply would be a change in its aesthetic qualities. The foreign substance must be non-toxic to humans.

**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 to humans from either a chemical, bacteriological or radiological standpoint. The effects of the contaminants may result from short or long term exposure.

Only the following types of backflow prevention devices may be used for the containment of on-site contaminants for high and low hazard situations respectively:

**C. High Hazard:**

1. Air gap (AG)
2. Reduced pressure principal backflow preventer (RPZ)
3. Combination of the above

**D. Low Hazard:**

1. Air gap (AG)
2. Pressure vacuum breaker (PVB)
3. Double check valve assembly (DCVA)
4. Reduced pressure principal backflow preventer (RPZ)
5. Combination of the above

## VIII. Permits

The Rye Water District shall not permit a cross-connection within the public water system unless it is considered necessary and cannot be eliminated.

**A.** Cross-connection permits that are required for each backflow prevention device are obtained from the Rye Water District. A fee, based upon labor costs, will be charged for the initial permit and for the renewal of each permit. A cross connection survey will be conducted by the Rye Water District prior to issuing a new permit or renewal of existing permit.

**B.** Cross-connection permits shall be renewed every five years and are non-transferable. Permits are subject to revocation and become immediately revoked if the owner should so change the type of cross-connection or degree of hazard associated with the service type of device, replacement of device with a new device, or change of ownership

C. A permit is not required residential services when containment is achieved through the utilization of a non-testable backflow preventer installed immediately downstream of the water meter.

## IX. Existing in-use Backflow Devices

Any existing backflow preventer shall be allowed by the Rye Water District to continue in service unless the degree of hazard is such as to supersede the effectiveness of the present backflow preventer, or unless an unreasonable risk to the public health results.

## X. Periodic Testing

A. Backflow prevention devices shall be inspected and tested at least semi-annually for high hazard devices and annually for low hazard devices. At the time of testing the owner or agent of will be required to be present for witnessing test, providing permission to shut down water to perform test, verifying water is service is reestablished and signing of completed test reports. The owner/agent is also responsible for deactivating and activating alarm systems when necessary to perform tests. Devices connected to a fire suppression system whether low hazard or high shall be tested semi-annually

B. Periodic inspections and testing shall be performed by an inspector certified through the NEWWA Backflow Prevention Device Inspectors/Testers Program. The inspections will be done at the owner's expense. When tests are performed by a non-Rye Water District personnel a five day minimum notification from owner agent of property to the Rye Water District will be required with test date, time and tester's certification #. Test reports and test gauge calibration information will be required to be submitted to the Rye Water District within five business days of completion of the test.

C. When performed by an inspector from the Rye Water District, the inspections shall be conducted during the Rye Water District's regular business hours (8:30 am to 3:00 pm). Exceptions to this, when at the request of the owner, may require additional charges to cover the increased costs to the Rye Water District.

D. Any backflow preventer which fails the inspection test during a periodic inspection shall be repaired or replaced. When repairs are necessary, upon completion of the repair the device will be inspected a second time at the owner's expense to ensure correct operation. High hazard situations will not be allowed to continue unprotected, if the backflow preventer fails the inspection and cannot be repaired immediately. In other situations, a compliance date of not more than 14 days after the inspection date shall be established. The owner is responsible for spare parts, repair tools, and/or a replacement device. Parallel installation of two devices is an effective means of the owner ensuring that uninterrupted water service is provided during inspections or repair of devices and is strongly recommended when the owner desires or needs such continuity.

E. These backflow devices shall be repaired or replaced at the expense of the owner whenever said devices are found to be defective. Tests and repairs shall be recorded on

forms approved by the water superintendent, and copies shall be distributed to the owner and water superintendent within five business days of the actual test.

**F.** Backflow prevention devices may be inspected more frequently than specified in Section A above; in cases where there is a history of test failures and the Rye Water District feels that due to the degree of hazard involved, additional inspections are warranted. Cost of the additional inspections will be borne by the owner.

## XI. Records and Reports

**A. Records** – The Rye Water District will initiate and maintain the following records for a minimum of five years:

1. Master files on customer cross-connection inspections and/or tests.
2. Master files on cross-connection permits.
3. Copies of permits and permit applications.

**B. Reports** – Each year, by April 1, the Rye water District will submit an inspection report for the previous year to NHDES which describes testing conducted during the previous calendar year and including the following:

(1) The total number of permitted cross connections that existed at the water system at the end of the year for which the report is being filed; and
(2) The following information for each backflow prevention device:

- **a.** The permit number of the backflow prevention device;
- **b.** The name of the owner of the backflow prevention device;
- **c.** The location of the backflow prevention device;
- **d.** The date of each inspection and test performed during the year of reporting;
- **e.** The name, certifying organization, and certification number of the certified backflow prevention device inspector who performed the inspection and test on the device;
- **f.** The result of each inspection and test; and
- **g.** If the inspection or test result is unsatisfactory, the date at which the backflow prevention device was found to be satisfactory following a subsequent inspection and test in that calendar year period.

## XII. Fees and Charges

The Rye Water District will publish a list of fees or charges for the following:

**A. Fees**

1. Inspection fees
2. Fees for re-inspections
3. Fees for testing
4. Fees for Backflow Preventer permits and renewal of permits

**B. Charges**

1. Charges for after-hours inspections will be at the same rate as those for Permit issuances.

## XIII. Residential Dual Check

**A.** All new residential buildings will be required to install a residential dual check valve device immediately downstream of the water meter. Installation of this residential dual check valve device on a retrofit basis on existing service lines will be instituted at a time and at a potential cost to the homeowner as deemed necessary by the Rye Water District.

**B.** The owner should be aware that installation of a residential dual check valve results in a closed plumbing system with the residence. As such, provisions may have to be made by the owner to provide for thermal expansion within the closed loop system, i.e., the installation of thermal expansion tanks and/or pressure relief valves.

**C.** The owner shall be responsible for maintenance of a residential dual check which requires either replacement of wearable parts and or replacement of device every five years or more frequently if found to be needed by The Rye Water District. The Rye Water District will notify owners in writing when device is due for service.

## XIV. Strainers

**A.** The Rye water District strongly recommends that all new retrofit installations of reduced pressure principle devices and double check valve backflow preventers include the installation of strainers located immediately upstream of the device to prevent fouling of backflow devices due to unforeseen circumstances occurring to the water 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 backflow devices installed without the benefit of strainers.

## XV. Installation Requirements (Testable Devices)

**A.** Must be a minimum of 12" from wall/s;
**B.** Must be a minimum of 12" from floor;
**C.** Must be no more than a maximum of 36" form floor;
**D.** Must not be installed in a vertical position unless device is approved for a vertical position;
**E.** Will not be installed in such a fashion that hinders operation of unit and or testing/repair of unit;
**F.** RPZ units shall not be installed in a pit, vault, or space that cannot allow for proper drainage or expose the unit to flooding;

G. RPZ units shall have an air gapped drain and or floor drain that can handle the maximum output of device

**XV1. Commercial properties**

1. All new commercial properties non-residential will be required to install an RPZ for containment purposes of the Rye Water District system
2. Commercial properties strictly of residential type will be assessed and degree of hazard will determine device type. A DCVA will be required as base minimum for containment purposes
3. Properties that blend residential housing and commercial use will be required to install an RPZ

**XV11. Irrigation systems**

1. All new and replacement irrigation systems will require a permit from the Rye Water District in accordance with the Rye Water District Requirements for Irrigation and Water Systems Policy
2. All new and replacement irrigation system installs will be required to install an RPZ or PVB IAW the installation instructions for the device. Prior to installation a proposed plan of system identifying but not limited to type of components, system use, system layout prior to obtain a permit
3. All RPZ or PVB devices shall be tested on an annual basis at the time of activation (although irrigation systems are considered a high hazard cross connection). If determined necessary by the Rye Water District more frequent testing may be required

**XV111. Booster pumps**

1. A booster pump assembly is not allowed in single use residency
2. Booster pumps installed or in use in commercial or multi-residency will require a RPZ upstream of the pump assembly.

Accepted by Rye Water District Commissioners

Date: March 22, 2023

~~Arthur Ditto~~

Ralph Hickson

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