HENRY COUNTY
PUBLIC SERVICE AUTHORITY

CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION PROGRAM

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this program is to abate or control actual or potential cross-connections and protect the public health. This program provides for establishment and enforcement of a program of cross-connection control and backflow prevention in accordance with the Commonwealth of Virginia, State Board of Health, *Waterworks Regulations*. The following are the program objectives:

- Preventing intrusion of contamination into the distribution from premise plumbing from cross-connections and backflow by installing an appropriate backflow prevention device or by backflow prevention by separation at the service connection. Containment has the highest priority.

- Preventing backflow of pollution or contamination into the premise plumbing by informing the consumer of the consumer's responsibility for water quality and providing assistance where requested in determining the degree of hazard. Informing owners of the need for isolation beyond the service connection will be a continuing effort.

- Preventing backflow of pollution or contamination into the waterworks and into the premise plumbing, where it is not intricate or complex, by application of point-of-use isolation in lieu of containment. The alternative of isolation in lieu of containment will be evaluated at each premise where containment is required.

2.0 REGULATORY BASIS AND PROGRAM AUTHORITY

This program was developed in accordance with the requirements for cross-connection control and backflow prevention in waterworks as addressed in:

- Virginia Department of Health *Waterworks Regulations*, 12VAC5-590; and
- Henry County Public Service Authority Rules and Regulations Section 12. Cross-Connection Control/ Backflow Prevention Program

The sections of the Waterworks Regulations for cross-connection control requirements are included in Appendix 1.

3.0 ADMINISTRATION

- The Henry County Public Service Authority (Authority) shall administer and enforce the provisions of this Program under the direction of the Director of Regulatory Compliance & Technical Applications.

- It shall be the duty of the Authority to cause assessment to be made of properties served by the waterworks where cross-connection with the waterworks is deemed possible. The method of determining potential cross-connection with the waterworks and the administrative procedures are established by Authority in a Cross-Connection Control Program (Program) prepared for approval by the Commonwealth of Virginia, Department of Health, Division of Water Supply Engineering.

- **The responsibility to carry out the Program lies with the Cross-Connection Control Program Administrator designated by the Director of Regulatory Compliance & Technical Applications.** The Cross Connection Control **Program Administrator** may be supported by a project team which can include one or more:
  - Field Inspectors
  - Building Code Compliance Official, and
  - Water and Wastewater Plant Supervisors and other support staff.

The **Program Administrator** must have training and experience in cross-connection control programs and is responsible for the implementation of the program. The Authority's **Industrial Pretreatment Coordinator** may serve as the **Program Administrator**. While more than one person may serve in the Authority's Program Administrator position, this position will be referred to as "**Program Administrator**" throughout this plan and the assignment of responsibilities for more than one **Program Administrator** will be determined by the **Director of Regulatory Compliance & Technical Applications** or the **Program Administrators**.

4.0 RESPONSIBILITIES OF THE AUTHORITY

Effective cross-connection control and backflow prevention requires the cooperation of the Authority**,** the owner(s) of the property served, the local building official and the backflow prevention device tester. The Authority as the water purveyor, has the primary responsibility to prevent water from unapproved sources, or any other substances from entering the potable water system. The Authority has established a program with enforcement capabilities for all waterworks it currently owns or operates including small systems and well systems. The program shall also be administered to the following:

- Existing connections to Authority-owned waterworks;
- Connections that exist at the time of acquisition, to waterworks acquired by the Authority;
- Connections to premises that exist at the time the Authority provides water service through construction of new lines;
- Connections to any other approved waterworks or water source;
- Connections to any premises proposed or existing:
  - Having an auxiliary water system,
  - On which any substance is handled in such a manner as to create an actual or potential hazard to the Authority's waterworks; and/or
  - Having fire protection systems utilizing combinations of sprinklers, fire loops, storage tanks, pumps, antifreeze protection or auxiliary water.
- Connections to other premises as may be deemed appropriate by the Authority.

As summarized below and described in more detail in this Plan, the Authority's responsibilities include, but are not limited to the following:

- The Program shall be carried out in accordance with the Commonwealth of Virginia, State Board of Health, *Waterworks Regulations* and as described in this Cross-Connection Control and Backflow Prevention Program Plan.

- The Authority has full responsibility for water quality and for the construction, maintenance and operation of the waterworks beginning at the water source and ending at the service connection. This includes maintaining at least 20 psig (psi gauge) pressure at all service connections or providing alternative arrangements to maintain 20 psig at the premise approved on a case-by-case basis, as necessary.

- The owner of the property served has the responsibility for water quality and for the construction, maintenance, and operation of the consumer's water supply system

from the service connection to the free-flowing outlet.

- The Authority shall, to the extent of their jurisdiction, provide continuing identification and evaluation of all cross-connection hazards. This shall include an assessment of each consumer's water supply system for cross connections to be followed by the requirement, if necessary, of installation of a backflow prevention device or separation.

- In the event of the backflow of pollution or contamination into the waterworks, the Authority shall promptly take or cause corrective action to confine and eliminate the pollution or contamination. The Authority shall report to the Virginia Department of Health, Office of Water Programs Field Office in the most expeditious manner (usually by telephone) when backflow occurs and shall submit a written report by the 10th day of the month following the month during which backflow occurred addressing the incident, its causes, effects, and preventative or control measures required or taken. This is discussed in more detail in Section 7.17.

- The Authority shall take positive action to ensure that the waterworks is adequately protected from cross connections and backflow at all times. If a cross-connection exists or backflow occurs into a consumer's water supply system or into the waterworks or if the consumer's water supply system causes the pressure in the waterworks to be lowered below 20 psi gauge, the Authority may discontinue the water service to the consumer and water service shall not be restored until the deficiencies have been corrected or eliminated to the satisfaction of the Authority.

- In order to protect the occupants of premises, the **Program Administrator**, or their designee, should inform the occupants of any cross-connection beyond the service connection that should be abated or controlled by application of an appropriate backflow prevention device or separation. Appropriate backflow prevention device or separation should be applied at each point-of-use and/or applied to the consumer's water supply system, isolating an area which may be a health or pollution hazard to the consumer's water supply system or to the waterworks.

- Records of backflow prevention devices, separations, and consumer's water supply systems, including inspection records, records of backflow incidents, and records of device tests shall be maintained by Authority for ten years.

- The Authority shall review its Cross-Connection Control and Backflow Prevention Program at a minimum frequency of every five years and update and/or revise the Cross-Connection Control and Backflow Prevention Program Plan, as appropriate. If

updates or revisions are made to the Plan, the Plan must be provided to the Virginia Department of Health for review and approval.

5.0 RESPONSIBILITIES OF THE CONSUMER'S WATER SUPPLY SYSTEM OWNER

The system owner's responsibility starts at the point of delivery from the Authority's waterworks and includes all the customer's plumbing system.

- The consumer's water supply system owner(s) shall provide all information requested by the Authority and permit Authority staff to inspect the plumbing system and associated backflow prevention devices, system, and approaches.

- The consumer's water supply system owner(s), at their own expense, shall install, operate, test, and maintain required backflow prevention devices or backflow prevention by separations.

- The system owner shall maintain accurate records of tests and repairs made to backflow prevention devices. These records shall be retained for a minimum of ten (10) years. The consumer's water supply system owner(s) shall provide copies of test results, maintenance records and overhaul records to the Authority within 15 days of completion of testing or work. Starting January 1, 2023, all such testing or work shall be performed by device testers which are certified by a Commonwealth of Virginia tradesman certification program (identified by DPOR as backflow prevention device workers).

- In the event of an accidental pollution or backflow on or from the customer's plumbing system, the system owner shall promptly take steps to confine further spread of the pollution or contamination, correct the problem, and notify the Authority. The Authority shall determine if the corrective actions are adequate, and if deemed inadequate, the Authority may terminate water service until satisfactory actions have been taken.

6.0 DEFINITIONS

For the purposes of this plan, the following terms shall have the meanings indicated:

Air-Gap Separation - The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying pure water to a tank, plumbing fixture or other device and the rim of the receptacle.

Auxiliary Water System - Any water system on or available to the premises other than the waterworks. These auxiliary waters may include water from another purveyor's waterworks or water from a source, such as wells, springs, lakes, streams, or process fluids or used water. They may be polluted or contaminated or objectionable or constitute a water source or system over which the water purveyor does not have control.

Backflow - The flow of contaminants, pollutants, process fluids, stagnant water, used water, untreated waters, chemicals, gases or non-potable waters into any part of a waterworks. Backflow can occur through either backpressure or back siphonage.

Backflow Prevention Device - Any approved device, method or type of construction intended to prevent backflow into a waterworks.

Consumer or Owner - The owner or person in control of any premises supplied by or any manner connected to a waterworks.

Consumer's (or Owner's) Water System - Any water system located on the consumer's premises, supplied by or in any manner connected to a waterwork.

Contamination - Any introduction into pure water of microorganisms, wastes, wastewater, undesirable chemicals, or gases.

Cross-Connection - Any actual or potential link, connection, or physical arrangement, direct or indirect, between used water, an auxiliary water system, or other source of contamination or pollution to the waterworks through which backflow can occur.

Degree of Hazard - A term derived from an evaluation of the potential risk to health and the adverse effect upon the waterworks.

Double Gate – Double Check Valve Assembly - An approved assembly composed of two (2) single, independently acting check valves, including tightly closing shutoff valves

located at each end of the assembly and test cocks to facilitate testing of the assembly, used for low hazard situations.

Health Hazard - Any condition, device or practice in a waterworks or its operation that creates or may create a danger to the health and well-being of the water consumer.

Interchangeable Connection - An arrangement or device that will allow alternate but not simultaneous use of two (2) sources of water.

Pollution - The presence of any foreign substance (chemical, physical, radiological or biological) in water that tends to degrade its quality so as to constitute an unnecessary risk to human health or impair the usefulness of the water.

Pollution Hazard - A condition through which an aesthetically objectionable or degrading material may enter the waterworks or a consumer's water system.

Process Fluids - Any fluid or solution which may be chemically, biologically, or otherwise contaminated or polluted which would constitute a health, environmental, or system hazard if introduced into the waterworks. This includes, but is not limited to:

a. Polluted or contaminated waters.
b. Process waters.
c. Used waters originated from the waterworks which may have deteriorated in sanitary quality.
d. Cooling Waters.
e. Contaminated natural waters taken from wells, lakes, streams or irrigation systems.
f. Chemicals in solution or suspension.
g. Oils, gases, acids, alkalis and other liquid and gaseous fluids used in industrial or other processes or for fire-fighting purposes.

Program - The Authority’s Cross-Connection Control and Backflow Prevention Program.

Pure Water or *Potable Water* - Water fit for human consumption and use which is sanitary and normally free of minerals, organic substances and toxic agents in excess of reasonable amounts for domestic usage in the area served and normally adequate in supply for the minimum health requirement of the persons served.

Reduced-Pressure-Principle Backflow Prevention Device - A device containing a minimum of two (2) independently acting check valves, together with an automatically

operated pressure-differential relief valve located between the two (2) check valves. During normal flow and at the cessation of normal flow, the pressure between these two (2) checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the check valves at less than the supply pressure. The unit must include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks. These devices must be of the approved type.

Service Connection - The point of delivery of finished water from a waterworks to a consumer's water system, fire protection system, irrigation system, and to all other points where finished water is delivered through the distribution system to a consumer. Generally, the service connection occurs at the water meter, or at the distribution main if no water meter is installed, or in the case of an owner of both the waterworks and the building supplied, the point of entry into the building. Service connections may be permanent, temporary, or emergency.

State Waterworks Regulations - The Virginia Department of Health *Waterworks Regulations*, 12VAC5-590.

System Hazard - A condition posing an actual or threat of damage to the physical properties of the waterworks or a consumer's water system.

Used Water - Any water supplied by a waterworks to a consumer's water system after it has passed through the service connection.

Water Purveyor - An individual, group of individuals, partnership, firm, association, institution, corporation, municipal corporation, county, or authority which supplies water to any person within this state from or by means of any waterworks.

Waterworks - All structures, equipment, and appurtenances used in the storage, collection, purification, treatment, and distribution of potable water except the piping and fixtures inside the building where such water is delivered.

7.0 PROCEDURES

7.1 General

Each premise's plumbing system, except residential customers, will be assessed by the Authority on a regular basis for cross-connection hazards. These assessments may be performed using questionnaires or on-site or phone interviews and inspections, and the results of these assessments will be used by the Authority to identify facilities requiring backflow prevention. These assessments will also be used to develop and maintain an inventory of all backflow prevention devices and approaches. The information in the inventory will be used to track device testing, maintenance and repairs and to support the implementation of the program. The Authority uses Utility Cloud software to generate work orders, develop reports, maintain records, and generate letters for its backflow prevention program.

The **Program Administrator** will require the installation of a backflow prevention assembly or backflow elimination method where the following conditions exist:

1. A substance is handled in such a manner as to create an actual or potential hazard to a waterworks (this shall include premises having sources or systems containing process fluids or waters originating from a waterworks which are no longer under the control of the Authority);

2. There exists internal cross-connections that, in the judgment of the Authority, may not be easily correctable or have intricate or complex plumbing arrangements that make it impracticable to determine whether or not cross-connections exist;

3. There are security requirements or other prohibitions or restrictions that prevent the assessment of all potential cross-connections that may impair the quality of the water delivered;

4. There is a repeated history of cross-connections being established or reestablished;

5. There are fire protection systems, lawn sprinkler systems, or irrigation systems;

6. The owner or department can show that a potential cross-connection hazard exists; and

7. Booster pumps or fire pumps connected to the waterworks. These facilities must also have control devices to prevent a reduction in the supply side water pressure to less than 20 psig.

In addition to the conditions listed above, backflow prevention devices or backflow elimination

method shall be in place for the types of facilities in the list below. The likely degree of hazard based on Table 630.1 from 12VAC5-590-630 is indicated in parentheses; however, it should be noted that each facility should be evaluated on an individual basis to assess facility-specific conditions and determine the appropriate level of hazard and appropriate type of protection.

1. Hospitals, mortuaries, clinics, veterinary establishments, nursing homes, and medical buildings; *(high)*

2. Laboratories; *(high)*

3. Piers, docks, and waterfront facilities; *(high)*

4. Sewage treatment plants, sewage pumping stations, or storm water pumping stations; *(high)*

5. Food and beverage processing plants; *(high)*

6. Chemical plants, dyeing plants, and pharmaceutical plants; *(high)*

7. Metal plating industries; *(high)*

8. Petroleum or natural-gas processing or storage plants; *(high)*

9. Radioactive materials processing plants or nuclear reactors; *(high)*

10. Car washes and laundries; *(high)*

11. Fire service systems;

12. Buildings with commercial, industrial, or institutional occupants served through a master meter; (*high or low)*

13. Water loading facilities; *(low)*

14. Slaughterhouses and poultry processing plants; *(high)*

15. Farms where the water is used for other than household purposes; *(high)*

16. Commercial greenhouses and nurseries; *(high)*

17. Health clubs with swimming pools, therapeutic baths, hot tubs, or saunas; *(high)*

18. Paper and paper-product plants and printing plants; *(high)*

19. Pesticide or exterminating companies and their vehicles with storage or mixing tanks; *(high)*

20. Facilities that blend, store, package, transport, or treat chemicals, and their related vehicles; *(high)*

21. Schools or colleges with laboratory facilities; *(high)*

22. Highrise buildings (four or more stories); *(low)*

23. Multiuse commercial, office or warehouse facilities; *(low)* and

24. Others specified by the Authority when reasonable cause can be shown for a potential backflow or cross-connection hazard.

The **Program Administrator** will arrange to have a questionnaire (survey form) sent to each remaining facility (buildings or other structures) plumbing system owner or have the questionnaire completed by phone interview, at least every five (5) years. A change in the account holder shall trigger completion of a new questionnaire. The **Program Administrator** will follow-up with nonresponding facilities or those with incomplete questionnaires.

The **Program Administrator** will route all new plans for service connections to serve fire service connections and lawn sprinkler or irrigation systems and backflow prevention recommendations beyond the service connection through the County's **Building Code Compliance Official**.

The **Building Code Compliance Official** will coordinate with the **Program Administrator** for cross-connection control requirements at new premises, premises where usage has changed, premises where booster or fire pumps are used, and all others where plumbing modifications occur.

The owners of facilities (buildings or other structures) are responsible for completing Authority questionnaires, installing appropriate backflow prevention devices and/or backflow prevention practices where needed, maintaining these devices in good working order, conducting annual backflow prevention device tests, submitting testing reports to the Authority in a timely manner,

participating in Authority inspections, and complying with the cross-connection control and backflow prevention requirements in accordance with the Authority's Cross-Connection/Backflow Prevention Program Rules and Regulations.

The **Program Administrator** will review and track the cross-connection control operational verification reports. If needed, the Program Administrator or their designated representative will notify the facility plumbing system owner by phone, email, or in writing as to any testing, inspecting, and overhauling requirements. Where possible, this will be done at least 60 days prior to their annual due date.

Enforcement action recommendations will be submitted by the **Program Administrator** to the **Director of Regulatory Compliance & Technical Applications** for approval.

7.2 Assessment by Questionnaires

The Authority will use questionnaires or survey forms to obtain information from existing facilities on backflow prevention devices or practices currently in place and to identify facilities that need to implement new or additional backflow prevention. The information obtained through the questionnaires will also be used to develop and maintain an inventory of system-wide backflow prevention practices.

Questionnaires will be sent to each premise plumbing system owner except residential customers or those premises where on site or phone interviews are being conducted. Residential owner backflow prevention will be addressed through public education and awareness campaigns and point-of-use backflow prevention.

The questionnaire will provide a brief explanation of the program, the causes of backflow, backflow control measures, and requests that the facility owner or operator provide information regarding:

- Owner name, contact name, service address, and phone number
- Occupant information if different from owner
- Presence of equipment, chemicals and processes that may need backflow prevention
- Location of backflow assembly, method, device or separation
- Information for each backflow prevention device including:
    - Manufacturer
    - Size
    - Type
    - Serial number
- A deadline to respond to the questionnaire

The questionnaire will also request information regarding:

- Presence and use of any individual:
    - Wells, springs or cisterns on the property
    - Pressure booster pumps
    - Water storage tanks
    - Water treatment systems
    - Outside hose bibs used in conjunction with:
        - Chemical sprayers
        - Jet spray washers
- Lawn sprinkler or irrigation systems

The questionnaire also includes contact information for questions or additional cross connection control and/or backflow prevention details. A copy of the questionnaire that may be used by the Authority along with a template cover letter for issuing the questionnaire are included in Appendix 2.

Upon return of the completed questionnaires, the following actions are taken:

1. The results of the questionnaires will be reviewed by the **Program Administrator**. Based on the response to the questionnaires, interviews may be scheduled, and appropriate devices or separations will be required to provide containment and/or point-of-use isolation where appropriate. Information from the questionnaires will be used as input parameters for the Authority-wide inventory and digital and/or printed copies of the questionnaires will be maintained as described in Section 7.16.

2. No response to the questionnaire will prompt an onsite interview. Refusal of access for inspection or provision of pertinent information shall prompt the requirement to install a high-hazard containment device.

3. Questionnaires can be repeated on a periodic basis at the discretion of the **Program Administrator** after an initial onsite interview, including those identified in Section 7.1, where devices or separations are installed, and the results of the initial interview are not expected to change. These premises would be where the plumbing is not intricate or complex and not expected to be modified and no unexpected change in use of the premises would occur without the **Program Administrator** being notified.

7.3 Assessment by Interviews

Upon completion of the questionnaire, the Authority will obtain additional facility and backflow prevention information through phone or on-site interviews with facility

representatives that are familiar with the plumbing system. These interviews will be used to assess the need for cross-connection control by containment.

1. Available information about the premises to be surveyed will be gathered prior to the interview.

2. The **Program Administrator** or **Field Inspector** will conduct a cross-connection control and backflow prevention onsite interview with each premise plumbing system owner or representative identified in Section 7.2. During these interviews, each installed device or separation will be inspected for appropriateness, proper installation and general appearance. Point-of-use isolation protection will be discussed with the owner. A report will be filed with the **Program Administrator** with any violations noted and/or recommendations for repair, replacement of existing devices or separations and/or installation of additional devices.

3. As part of the interview, the following items may be addressed with the facility representative:
   a. The reasons for cross-connection control and backflow prevention will be explained.
   b. Water uses after it enters the premises will be investigated.
   c. Plans for future expansion and possible additional protection requirements.

4. An inspection of the premises will be requested to determine if point-of-use isolation should be installed for the protection of the premise plumbing system users or considered for substitution for containment.

5. All information will be recorded on the prepared questionnaire or an inspection report. This will include:
   - Assessment of:
     - Degree of hazard
     - Appropriateness of device or separation
     - Acceptability of the device installation
     - General condition of device or separation
   - Any repair/replacement recommendations
   - New/additional device or separation recommendations
   - Any indication of thermal expansion problems

   The degree of hazard will be determined using the **Table 630.1 Determination of Degree of Hazard** as a guide. This table is included in Appendix 1.

Diagrams and other information may be included as determined necessary or helpful by the **Program Administrator** or **Field Inspector.**

6. The results of the interview with any recommendations for containment devices, separations and point-of-use isolation will be submitted to the **Program Administrator** for approval. Recommendations for isolation devices or separation in lieu of containment will also be submitted to the **Building Code Compliance Official** through the **Program Administrator** for approval.

7. For those facilities where phone interviews are conducted by the **Program Administrator** or **Field Inspector,** a cross-connection control questionnaire will be completed to reaffirm the degree of hazard and to assess the facility for new hazards. During these interviews, each installed device or separation will be evaluated for appropriateness, proper installation, and general appearance. Point-of-use isolation protection will be discussed with the owner. A report will be filed with the **Program Administrator** with violations noted and/or recommendations for repair, replacement of existing devices or separations and/or installation of additional devices.

7.4 Consumer Notification

Upon completion of the questionnaires and/or inspection, the Authority will contact each facility that needs to implement or improve existing backflow prevention, as follows:

1. The **Program Administrator** will notify the facility owner in writing of the required location of any device or separation, the type of device or separation required, and the deadline for completing the installation - usually 60 days unless a shorter time period is deemed necessary for an imminent hazard to the waterworks.

2. If the facility owner fails to install any required device or separation within the deadline or fails to complete testing, inspecting, or overhauling as required, the **Program Administrator** shall notify the **Director of Regulatory Compliance & Technical Applications** and send a Notice of Violation, including a notification of termination of water service unless compliance is obtained within 30 days.

7.5 New Facilities

To ensure that new facilities include the appropriate backflow prevention devices and approaches, the **Building Code Compliance Official** will review building permit applications, review plans, and check for appropriate backflow prevention, as follows:

1. All building permit applications shall be reviewed and approved by the **Building Code Compliance Official** for cross-connection control requirements prior to issuance of a building permit.

2. Required devices or separations shall be operational prior to issuance of a certificate to occupy. The facility owner is responsible for completing the initial testing of devices and verification of separations and submitting the test reports to the **Program Administrator**.

3. A follow-up inspection of all facilities except residential dwellings will be performed by the **Program Administrator** or **Field Inspector** within 30 days of occupancy.

7.6 Henry County Public Service Authority Facilities

All Authority facilities, including but not limited to the Water Treatment Plant, Wastewater Treatment Plant, water and wastewater pump stations, Public Works, and the Authority administrative building will be included in the backflow prevention questionnaires, interviews, inspections, testing, and reporting requirements described herein. These facilities will be included in the Authority-wide backflow prevention inventory and tracking system.

7.7 Facilities with Auxiliary Water Systems

As defined in the Waterworks Regulations, an “auxiliary water system" is:

> *“Any water supply or system on or available to the premises of the consumer other than the waterworks. These may be polluted or contaminated, objectionable, or of questionable quality and constitute an unapproved water supply or system over which the waterworks owner does not have control*.”

These systems could constitute a risk to the facility’s and Authority’s potable water systems if cross-connection control or backflow prevention devices and/or practices are not in place. The following actions will be taken for any facilities with auxiliary water systems:

1. Facilities with an auxiliary water system requesting a new service connection or reconnection to the waterworks must be assessed by onsite inspection for cross connection hazards and the appropriate separation installed, inspected, and operational prior to making the service connection.

2. Premises with an auxiliary water system may, upon approval of the **Program Administrator**, maintain the auxiliary water system on the premises if a separation from the consumer's premise plumbing is provided and maintained and access is

granted for inspections. A written request must be made and the **Building Compliance Official** concurs.

3. Annual assessments will be made to verify the maintenance of the separation. If an interview is denied, then the customer will be notified in writing of the requirement to install a high-hazard containment device.

7.8 Facilities with Booster or Fire Pumps

Unregulated fire and booster pumps connected to the water system have the potential to reduce local water system pressure to less than the required 20 psig, which can create backflow in unprotected parts of the potable water distribution system. As such, it is important to identify facilities with fire or booster pumps and to ensure that the appropriate regulators are in place and functional to maintain at least 20 psig in the water system. To do so, the following actions will be taken for any facilities with fire or booster pumps:

1. Facilities having booster pumps or fire pumps connected to the waterworks shall have the pumps equipped with a pressure sensing device to shut off or regulate the flow to prevent a reduction of pump suction line pressure to less than 20 psig.

2. Annual assessments of premises with booster or fire pumps to prevent a reduction of pump suction line pressure to less than 20 psig will be made to verify the maintenance of the pressure sensing device. The reports of these assessments must be provided to the **Program Administrator** within 15 days and will be included in the Authority-wide backflow prevention data inventory.

3. Repairs or replacements of pump systems that do not meet this minimum pressure requirements must be implemented as soon as possible and verification of the repair or preplacement and a report showing the maintenance of at least 20 psig must be provided to the **Program Administrator** within 15 days.

7.9 Backflow Prevention Device Worker

Only qualified individuals may test, repair, or replace backflow prevention devices. In accordance with the requirements included in the Waterworks Regulations, qualified backflow prevention device individuals or workers must be certified through the Virginia Department of Professional

and Occupational Regulation (DPOR). The Authority's requirements for Backflow Prevention Device Workers (BPD Workers) are summarized as follows:

1. The BPD Worker is responsible for making competent inspections and for repairing or overhauling backflow prevention devices and making reports of such repair to the facility owner on forms approved by the **Program Administrator.**

2. The BPD Worker shall include the list of materials or replacement parts used and ensure that parts used in the repair of the backflow prevention device meet the manufacturer's recommendations.

3. The BPD Worker shall not change the design or operational characteristics of a device during repair or maintenance without prior written approval of the facility's owner and the **Program Administrator.**

4. The BPD Worker shall be equipped with and be competent in the use of all the necessary tools, gauges, manometers and other equipment necessary to properly test, repair and maintain backflow prevention devices.

5. Effective January 1, 2023, persons testing and repairing backflow prevention assemblies and backflow prevention devices shall be certified by a Commonwealth of Virginia tradesman certification program (identified by DPOR as backflow prevention device workers).

7.10 Point-of-Use Isolation Protection

As an option to containment backflow prevention at the service connection, the Authority may utilize a point-of-use backflow prevention approach that is focused on backflow prevention at a specific location(s) within a facility. This control approach is best suited for simple system where there is little chance for an unknown connection to exist that could serve as a conduit to backflow. This alternative approach is summarized as follows:

1. Any commercial or industrial facility where all actual or potential cross-connections can be easily correctable at each point-of-use and where the premise plumbing system is not intricate or complex, point-of-use isolation protection by application of appropriate backflow prevention devices or separations may be used in lieu of installing a containment device at the service connection if the following conditions are met:
   a. The method of protection provided shall be, in the judgment of the **Program Administrator**, the method which best provides protection;

b. The premise plumbing system owner grants access for inspections; and makes a request in writing for point-of-use isolation protection; and
c. The **Building Code Compliance Official** concurs.

2. All backflow prevention assemblies or backflow elimination methods or backflow prevention devices installed under this section shall be of the approved type and shall comply with the requirements of the USBC.

3. Point-of-use isolation protection is included in the residential public education and awareness materials and is recommended for use by residential consumers that use garden hose sprayers and irrigation systems.

7.11 Containment Policy and Service Line Protection

In accordance with 12VAC5-590-610 of the *Waterworks Regulations*, the waterworks requires containment consisting of a backflow prevention assembly installed at:

- The service connection for all commercial and non-residential service connections, as well as all connections served by a master meter. This includes, but is not limited to, facilities listed in Section 7.1. Customers wishing to install their backflow prevention assembly (BPA) at a location other than the service connection are subject to the approval of the **Program Administrator** and the **Building Code Compliance Official**. If approval to install the BPA at a location downstream of the service connection is granted, the BPA shall be installed prior to any unprotected takeoffs.

- Residential irrigation system BPAs may be located at the point of connection between the premise plumbing and the irrigation system, but before any irrigation system outlets, controls, or openings. This isolation in lieu of containment method of protection is permitted so that the customer can be protected from potential contamination by their own irrigation system. Under this scenario, the irrigation BPA serves as the required containment BPA.

The **Program Administrator** or the **Building Code Compliance Official** may require additional backflow prevention assemblies or devices to provide isolation protection for spaces inside of multi-use properties to ensure a potential hazard to the potable water system is not spread to the water system utilized by other occupants of the building. These include facilities identified by the VDH regulations as requiring a backflow prevention assembly at the service connection but have been located within a multi-use building. Additional examples would also include, but not be limited to restaurants, medical facilities, veterinarian facilities, nail or hair salons, dry cleaners and

commercial laundry equipment, reclaimed or recycled water, solar hot water systems, grocery stores, breweries or beverage processing plants, film laboratories, etc.

The USBC and the manufacturer's specifications shall be used to determine the appropriateness of the backflow prevention assembly or backflow prevention device application and shall depend on the degree of hazard that exists or may exist.

7.12 Facility Device Testing, Repairs, and Maintenance

Owners and/or operators of facilities served by the waterworks are required to maintain all backflow prevention devices in good operating order at all times. To demonstrate compliance with the requirement**, all backflow prevention assemblies and backflow prevention devices must be tested on an annual basis. New backflow prevention assemblies and backflow prevention devices must be tested immediately upon installation.** Similarly, **testing must be performed immediately for repairs or replacement for all backflow prevention assemblies and backflow prevention assemblies and backflow prevention devices**.

Device testing, repairs or other maintenance must be performed by a backflow prevention device worker with DPOR backflow device worker certification, and the test report must be provided to the Authority within 15 days of testing. The test report will contain:

- Backflow prevention device details including location, manufacturer and model, and serial number
- Line pressure
- Results of testing
- Test method used
- Date and signature of device tester
- DPOR license number

If repairs were made, the test report will contain:

- Which parts were replaced
- The replacement parts used
- The probable cause of test failure
- Preventative measures taken

An example backflow prevention device testing report form is provided in Appendix 3. Other report formats that include the information required to document acceptable testing procedures may be accepted as determined by the **Program Administrator**.

Letter templates for use by the **Program Administrator** are provided in Appendix 4 and address:

- Initial Notification of backflow prevention program

- Notification for annual backflow prevention device testing
- Responding to failures to provide annual backflow prevention device test results
- Responding to a failed backflow prevention device test
- Notice of Violation

These templates may be modified by the **Program Administrator** to address specific situations or other letters may be used, as deemed appropriate by the **Program Administrator**.

7.13 Distribution System Working Pressure

In accordance with 12VAC5-590-510 C of the *Waterworks Regulations*, the Authority shall maintain a minimum acceptable working pressure of 20 psig at all service connections in the distribution system to reduce the potential for backflow to occur.

7.14 Cross-Connection Control Plan Review

As required by 12VAC5-590-580 C of the *Waterworks Regulations*, the Authority will review the cross-connection control program and written Cross-Connection Control Plan not less than every five years and update it as necessary to satisfy the *Waterworks Regulations* cross-connection control requirements. The owner shall submit updates to the Office of Drinking Water for approval.

7.15 Temporary and Emergency Service Connections

Temporary or emergency service connections can act as sources of backflow in water distribution systems. As such, these connections shall be protected with a backflow prevention assembly or backflow prevention method. This includes all connections made to fire hydrants for purposes such as filling tank trucks, construction activities, and landscaping.

7.16 Records and Record Keeping

As part of the Cross-Connection Control and Backflow Prevention Program, the Authority maintains **the following program records in either printed or digital format for a period of no less than 10 years**:

System-wide Customer Listing: The Authority maintains a listing of all water customers. This list includes owner name, address and contact information and is used for billing purposes. If needed, it can serve as a resource for the **Program Administrator(s)** to:

- Access contact information to schedule any needed meetings
- Provide cross connection control and backflow prevention information
- Contact in the event of a backflow occurrence.

Cross-Connection Control and Backflow Prevention Device Inventory: The Authority will develop and maintain an up-to-date digital inventory of plumbing system owners who have backflow prevention assemblies, backflow elimination methods, and backflow prevention devices, (including pressure sensing devices and separations from auxiliary water systems and air gaps). The inventory includes information from the cross-connection control questionnaire, including:

- Name and address of premises
- Owner name, address, and contact information
- Contact person and phone number
- Type, location, and details for each assembly, method, device or separation
- Cross-connection or pressure sensing device testing schedule

Cross-Connection Control Questionnaire: Original or digital copies of the initial and follow-up surveys are maintained by the **Program Administrator**. These records include:

- Inventory information as noted in section 7.16 above
- Assessment of:
  - Degree of hazard
  - Appropriateness of device or separation
  - Acceptable installation
  - General condition of device or separation
- Repair/replacement recommendations
- New/additional device or separation recommendations
- Any indication of thermal expansion problems

Testing, Repairs, and Maintenance Records: Records for testing, repairs or replacement for all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices are maintained by the **Program Administrator**. In the case of single-family residences with fire protection systems, lawn sprinkler systems, or irrigation systems, the Authority utilizes public information and education to address backflow prevention for these residences and will not maintain an inventory and records.

Cross-Connection Control Program Plan: The Cross-Connection Control Plan documents will be maintained by the **Program Administrator**. This includes the plan, documentation of period plan reviews, document updates and/or revisions, and the VDH approval letters.

7.17 Addressing Backflow of Contaminants or Suspected Backflow

The facility system owner, backflow device worker or any other person should report backflow of contamination or the suspicion of backflow to any one or all of the following persons:

- Program Administrator

- Field Inspector
- Building Code Compliance Official
- Water Treatment Plant Operators
- Virginia Department of Health, Office of Water Programs Field Office
- Local Health Department, Environmental Health Specialist

If any of the **Building Code Compliance Official** or the **Waterworks Operations** staff are contacted initially, they should immediately report the inform the **Program Administrator** and/or **the Field Inspector** who in turn should contact the VDH Danville Field Office via phone at the following number:

During regular business hours: **(434) 836-8416**
Nights and weekends: **1-866-531-3068 (ask for Drinking Water)**

The Authority must contact VDH within 2 hours if:

- Any failure or malfunction of equipment that results in the inability to produce and distribute water that meets all drinking water standards.
- Any contaminant release to the source water or water distribution system.

The individual contacting VDH should provide all details of the potential or known backflow event including:

- The time of initial notification,
- The details of the event as they are known at that time,
- Notification of potentially affected consumers, and
- The actions taken or planned to isolate potential contamination.

The official that contacts VDH should also document the time and date of the contact, the VDH representative that is contacted, and any instructions provided by the VDH representative.

The **Field Inspector** will be responsible for investigating reports of contamination or suspected contamination and the **Field Inspector** or **Program Administrator** will be responsible for notifying the Virginia Department of Health, Office of Drinking Water Danville Field Office as soon as possible, but no later than within one business day in the most expeditious manner (telephone and confirmed by email). A written report will be submitted by the 10th day of the month following the month during which backflow occurred addressing the incident, its causes and effects, and safeguards required or other action taken.

In the event of backflow of contaminants into the waterworks, the owner shall promptly take or cause corrective action to confine and eliminate the contamination. Actions may include:

1. Temporarily discontinue service to the facility in question until the cause is corrected.
2. Remove the service meter and flush the contamination from the service line to prevent further migration into the distribution system.
3. Flushing the distribution system.
4. Sampling to confirm satisfactory water quality.
5. Install, as appropriate, containment protection.

8.0 BACKFLOW PREVENTION DEVICES

8.1 Device Selection Guidelines

A. Uniform State-wide Building Code (USBC) Compliance:

Any backflow prevention assembly or backflow elimination method or backflow prevention device shall be of the approved type and shall comply with the USBC.

B. General Safeguards:

1. The backflow prevention assembly or backflow elimination method or backflow elimination device used shall depend on the degree of hazard that exists or may exist. The safeguard shall ensure maintenance of the distribution system water quality and its usefulness.

2. The degree of hazard, either high or low, is based on:
   a. the nature of the contaminant;
   b. the potential of the health hazard;
   c. the potential method of backflow (either by backpressure or by backsiphonage); and
   d. the potential effect on waterworks structures, equipment, and appurtenances used in the storage, collection, purification, treatment, and distribution of potable water.

The USBC shall be used as a guide to determine the degree of hazard for any situation.

3. The USBC and the manufacturer's specifications shall be used to determine the appropriateness of the backflow prevention assembly or backflow prevention device application for containment.

C. Device Selection:

The backflow prevention device for each location shall depend on the degree of hazard which exists or may exist. Backflow prevention by separation gives the highest degree of protection and shall be used whenever practical to do so in high hazard situations subject to backpressure.

8.2 Device Installation

Any backflow prevention assembly or backflow prevention device shall be installed in accordance with the USBC and the manufacturer's instructions. Owners shall not allow the installation of backflow prevention devices or backflow prevention assemblies with openings, outlets, or vents that are designed to operate or open during backflow prevention:

1. In areas subject to flooding or in pits;

2. In areas with atmospheric conditions that represent a contamination threat to the potable water supply; and

3. In such a manner as to be able to be bypassed.

8.3 Device Testability/Serviceability

1. Containment or isolation devices used within the premise plumbing system that are capable of being tested and repaired in-line include the Reduced Pressure Principle Device (RPZ), Double Gate—Double Check Valve Assembly (DG—DC) & Pressure Vacuum Breaker (PVB).

2. Residential Dual Checks without an intermediate atmospheric vent and Boiler Dual Checks with an intermediate atmospheric vent are testable but most of these ASSE approved devices must be removed for testing. Some can be overhauled in-line.

3. Generally, a visual inspection is the only means to inspect most Hose Bibb Vacuum Breakers (HBVBs) since they cannot be removed if installed in accordance with the manufacturer's instructions. Some manufacturers do provide wall hydrant type HBVB with removable vacuum breakers which can be easily removed for inspection and replacement.

4. Pipe connected Atmospheric Vacuum Breakers (AVBs) can be inspected by removing the top cover.

5. Air gaps and physical disconnection require only a visual inspection.

8.4 Thermal Expansion

Normally, as water is heated and expands it would back up in the service line into the main if no usage was occurring. Installation of backflow prevention devices or certain plumbing appurtenances (pressure reducing valves) at the service connection or within the consumer's premise plumbing prevent thermally expanded water from flowing from the premises into the distribution system. When

the water heater is operating, water is expanding and pressure is increasing, thermal expansion in a closed plumbing system under no flow conditions may cause the emergency temperature and pressure relief valve to open and close frequently and may reduce the life of plumbing fixtures and piping.

The temperature and pressure (T & P) relief valve is an emergency relief valve, not an operating control valve. If the T & P relief valve is used frequently, its useful life will be shortened, and it could cease to function.

Thermal expansion can cause damaging stress and strain to water heaters, solenoid valves, O-rings, float valves, pump seals, and plumbing fixtures or fittings.

Generally, 80 psi for a short period of time is the maximum pressure under no flow conditions most fixtures, appliances or appurtenances should be subjected to.

Where thermal expansion is a problem, the following devices could be installed:

1. A bladder or diaphragm type expansion tank;
2. An auxiliary pressure relief valve; and
3. An anti-siphon ball cock with auxiliary relief valve into the toilet tank set at no more than 80 psi.

Installation should be in accordance with the manufacturer's instructions, the Uniform Statewide Building Code and the National Sanitation Foundation.

Customers will be advised of the potential for thermal expansion prior to or during installation of a backflow prevention device. Solutions to thermal expansion will be at the discretion of the facility owner and at the expense of the facility owner.

9.0 PUBLIC EDUCATION

Cross-connection control and backflow prevention for residential users will be addressed through public education and awareness campaign. This includes one or more of the following:

- The development of a backflow prevention informational brochure that will be provided to all residential customers
- Posting cross-connection control and backflow information with links to various resources on the Authority's website

The brochure and website are designed to educate homeowners and residents and will provide a brief explanation of the causes of backflow, the potential impacts to the potable water supply, common causes of backflow, and backflow control measures that can be used by all consumers. Some common cross-connections that will be addressed include:

- Garden hose with its outlet submerged
- Kitchen sink spray hose with its spray head submerged
- Hand-held shower massager with its head submerged
- Utility sinks with hoses extending below sink rim
- Garden hose used as an aspirator to spray soap or garden chemicals
- Spring, well, cistern, hot-tub, or swimming pool connected to the house plumbing system
- Improperly connected water softeners
- Lawn sprinkler or irrigation systems
- Outside hose bibs used in conjunction with:
    - Chemical sprayers
    - Jet spray washers

The brochure will also address other potential concerns including:

- pressure booster pumps
- water storage tanks
- water treatment systems
- swimming pools, hot tubs, saunas, etc.
- animal watering troughs
- Failing existing cross-connection control devices

An example Cross-Connection Control and Backflow Prevention brochure is included in Appendix 5.

In addition to identifying potential sources of backflow, the brochure and website will identify backflow prevention practices (separation) and devices that can be obtained and used by

residents to prevent backflow. Contact information for questions and to obtain additional information will also be provided.

Other public education and awareness approaches may be used by the Authority to further support the residential customer participation in backflow prevention.

10.0 ENFORCEMENT

10.1 General

The implementation of a successful cross connection control and backflow prevention program depends on the participation and cooperation of the owners of facilities and their compliance with the Authority's Cross-Connection/Backflow Prevention Program Rules and Regulations. If a facility owner is not cooperative with Authority staff or does not implement the required actions or controls, the Authority may initiate enforcement actions as described herein.

Upon request, the owner or occupants of property served by the Authority's water system shall furnish to the **Program Administrator,** or their designated representative, pertinent information regarding the consumer's water supply system or systems on such property for the purpose of assessing the consumer's water supply system for cross-connection hazards and determining the degree of hazard, if any. The refusal of such information, when requested, shall be deemed evidence of the presence of a high degree of hazard cross-connection. In such cases, the owner of the facility will be required to install the appropriate containment backflow prevention devices and implement the required reporting, testing, and other requirements.

10.2 Notice of Violation

Any water supply system owner found to be in violation of any provision of this Program shall be served a written notice of violation sent certified mail or delivered by the Authority to the water supply system owner's last known address, stating the nature of the violation, corrective action required and providing a reasonable time limit, not to exceed 30 days, from the date of receipt of the notice of violation, to bring the consumer's water supply system into compliance with this Program or have water service terminated.

10.3 Water Service Termination

If the owner of a facility fails to adequately address the actions required in the NOV, the next enforcement action requires water service termination, the Authority shall notify the customer of the intent to discontinue water service unless the following are corrected:

- The consumer does not install, test and maintain a required backflow prevention assembly or backflow elimination method in accordance with the applicable sections of this Plan;

- The consumer allows a required backflow prevention assembly or backflow elimination method to become inoperable or the consumer removes or bypasses it; or

- The owner knows an unprotected or inadequately protected cross-connection exists on the premises and determines that there is inadequate backflow prevention at the service connection.

In the event the situation is not corrected within the required timeframe, the Authority shall discontinue water service. Water service will not be restored until the actions that required water service termination are corrected to the satisfaction of the Authority. Successful completion of the required actions may be verified by the **Program Administrator** or **Field Inspector**.

APPENDIX 1

Cross-Connection Control Sections of the
Virginia Waterworks Regulations

Appendix 1
Cross Connection Control Sections of the Virginia Waterworks Regulations

12VAC5-590-580. General Requirements for Cross-Connection Control and Backflow Prevention.

A. Every owner shall establish and enforce a cross-connection control program (CCCP) in accordance with 12VAC5-590-360. The goal of the CCCP is to prevent the intrusion of contamination into the distribution system via cross-connections and backflow. The owner shall document the CCCP activities in a cross-connection control plan and submit the written document to the department for review and approval.

B. No owner shall install, maintain, or allow a service connection to any premises where cross-connections to a waterworks or a consumer's water system exist, unless the owner and department ensure the cross-connections are adequately safeguarded.

C. No owner shall install, maintain, or allow any connection whereby water from an auxiliary water system may enter a waterworks or consumer's water system, unless the owner and department approve the auxiliary water system, the method of connection, and use of such system.

D. The owner, in accordance with 12VAC5-590-510 C, shall maintain acceptable working pressures in the distribution system to reduce the potential for backflow to occur.

12VAC5-590-600. Cross-Connection Control Program Responsibilities.

A. The owner shall establish and implement a CCCP consistent with the extent of the distribution system and the consumers served by the waterworks. The owner shall review the CCCP and written cross-connection control plan not less than every five years and update it as necessary to satisfy the requirements of this chapter. The owner shall submit updates to the department to obtain approval. The department may review the plan upon request. This program shall include at least one designated individual assigned by the owner. Requirements for this position shall include training and experience in cross-connection control programs.

B. The CCCP shall not be in conflict with the USBC and applicable building code regulations, including 13VAC5-63 or subsequent regulations promulgated by the Board of Housing and Community Development.

C. The CCCP shall ensure complete assessments of every consumer's water system and shall determine both the degree of hazard and the appropriateness of existing safeguards to prevent contamination from cross-connections and backflow.

D. The CCCP shall ensure testing, maintenance, and repairs of all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices required and installed pursuant to 12VAC5-590-610.

Appendix 1
Cross Connection Control Sections of the Virginia Waterworks Regulations

E. 13VAC5-63-530, which incorporates the International Property Maintenance Code into the USBC, requires testing of RPZ assemblies, double check valve assemblies, double check detector backflow assemblies, and pressure vacuum breaker assemblies after initial installation, immediately after repairs or relocation, and annually thereafter. The CCCP shall establish procedures for completing and monitoring operational tests, or other evaluation procedures as appropriate, at least annually, and after installation, relocation, or repairs, for testable backflow prevention assemblies, devices, and methods that provide containment. The CCCP may include a public education program to:

1. Prompt consumer self-assessments, increase the awareness of cross-connections, and inform the consumer of the public health hazards of backflow.

2. The public education program, if provided as part of the CCCP, shall include, at a minimum, the following:

   a. Causes of backflow;

   b. Hazards and health effects of cross-connections and backflow;

   c. Resources available to identify actual or potential cross-connections;

   d. Safeguards to use to eliminate or control the hazards at the point of use; and

   e. Sources for additional information.

F. The CCCP shall provide a method to discontinue or refuse water service to the consumer to ensure that the waterworks is adequately protected from cross-connections and backflow if any of the following conditions occur:

1. The consumer does not install, test and maintain a required backflow prevention assembly or backflow elimination method in accordance with the applicable sections of this chapter;

2. The consumer allows a required backflow prevention assembly or backflow elimination method to become inoperable or the consumer removes or bypasses it; or

3. The owner knows an unprotected or inadequately protected cross-connection exists on the premises and determines that there is inadequate backflow prevention at the service connection.

G. In the event of backflow of contaminants into the waterworks, the owner shall promptly take or cause corrective action to confine and eliminate the contamination. The owner shall report the event to the department within one business day in the most expeditious manner. The owner shall submit a written report by the 10th day of the month following the month during which backflow occurred addressing the incident, its causes and effects, and safeguards required or other action taken.

H. The owner shall maintain an inventory and records of testing, repairs, and maintenance of all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices required and installed under 12VAC5-590-610 C. In the case of single-family residences subject to 12VAC5-590-610 C 5, the owner may determine whether or not to maintain an

inventory or records. The department recommends the owner follow best practices identified in the AWWA Manual of Water Supply Practices M14 and the EPA Cross-Connection Control Manual.

I. The owner shall maintain an inventory and records of testing, repairs, and maintenance of all backflow prevention assemblies, backflow elimination methods, and backflow prevention devices required and installed under 12VAC5-590-610 E.

J. The owner shall maintain records related to the CCCP implementation, and any other records the department requires in accordance with 12VAC5-590-550.

12VAC5-590-610. Containment of Backflow.

A. The owner shall ensure installation of backflow prevention assemblies or backflow elimination methods (i) at the service connection or (ii) downstream of the service connection but before any unprotected takeoffs.

B. Where the consumer's water system is not intricate or complex and where actual or potential cross-connection hazards can be eliminated or controlled, instead of containment, the owner may allow consumers to use point-of-use isolation protection by application of appropriate backflow prevention assemblies, backflow prevention devices, or backflow elimination methods complying with the USBC.

C. A backflow prevention assembly or backflow elimination method shall be installed where the following conditions exist:

1. A substance is handled in such a manner as to create an actual or potential hazard to a waterworks (this shall include premises having sources or systems containing process fluids or waters originating from a waterworks which are no longer under the control of the owner);

2. There exists internal cross-connections that, in the judgment of the owner or the department, may not be easily correctable or have intricate or complex plumbing arrangements that make it impracticable to determine whether or not cross-connections exist;

3. There are security requirements or other prohibitions or restrictions that prevent the assessment of all potential cross-connections that may impair the quality of the water delivered;

4. There is a repeated history of cross-connections being established or reestablished;

5. There are fire protection systems, lawn sprinkler systems, or irrigation systems;

6. The owner or department can show that a potential cross-connection hazard exists.

D. The owner shall ensure that consumers equip premises having booster pumps or fire pumps connected to the waterworks with control devices to prevent a reduction of pump suction line pressure to less than 20 psig.

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Cross Connection Control Sections of the Virginia Waterworks Regulations

E. A backflow prevention assembly or backflow elimination method shall be installed at consumer water systems serving the following types of facilities, including:

1. Hospitals, mortuaries, clinics, veterinary establishments, nursing homes, and medical buildings;

2. Laboratories;

3. Piers, docks, and waterfront facilities;

4. Sewage treatment plants, sewage pumping stations, or storm water pumping stations;

5. Food and beverage processing plants;

6. Chemical plants, dyeing plants, and pharmaceutical plants;

7. Metal plating industries;

8. Petroleum or natural-gas processing or storage plants;

9. Radioactive materials processing plants or nuclear reactors;

10. Car washes and laundries;

11. Buildings with commercial, industrial, or institutional occupants served through a master meter;

12. Water loading facilities;

13. Slaughter houses and poultry processing plants;

14. Farms where the water is used for other than household purposes;

15. Commercial greenhouses and nurseries;

16. Health clubs with swimming pools, therapeutic baths, hot tubs, or saunas;

17. Paper and paper-product plants and printing plants;

18. Pesticide or exterminating companies and their vehicles with storage or mixing tanks;

19. Facilities that blend, store, package, transport, or treat chemicals, and their related vehicles;

20. Schools or colleges with laboratory facilities;

21. Highrise buildings (four or more stories);

22. Multiuse commercial, office or warehouse facilities; and

23. Others specified by the owner or the department when reasonable cause can be shown for a potential backflow or cross-connection hazard.

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F. All temporary or emergency service connections shall be protected where reasonable cause can be shown for a potential backflow or cross-connection hazard. Backflow prevention assemblies or backflow elimination methods used shall be appropriately certified or approved to match the requirements of this section.

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Cross Connection Control Sections of the Virginia Waterworks Regulations

12VAC5-590-630. Backflow prevention assemblies, devices, and backflow elimination methods for containment.

A. Any backflow prevention assembly or backflow elimination method or backflow prevention device shall be of the approved type and shall comply with the USBC.

B. General safeguards

1. The backflow prevention assembly or backflow elimination method or backflow elimination device used shall depend on the degree of hazard that exists or may exist. The safeguard shall ensure maintenance of the distribution system water quality and its usefulness.

2. The degree of hazard, either high or low, is based on (i) the nature of the contaminant; (ii) the potential of the health hazard; (iii) the potential method of backflow (either by backpressure or by backsiphonage); and (iv) the potential effect on waterworks structures, equipment, and appurtenances used in the storage, collection, purification, treatment, and distribution of potable water. Table 630.1 shall be used as a guide to determine the degree of hazard for any situation.

Table 630.1
Determination of Degree of Hazard

Cross-connections that meet or may meet the following conditions shall be rated at the corresponding degree of hazard.

High Hazard	Low Hazard
The contaminant would be toxic, poisonous, noxious, unhealthy, or of unknown quality.	The contaminant would only degrade the quality of the water aesthetically or impair the usefulness of the water.
A health hazard would exist.	A health hazard would not exist.
The contaminant would disrupt the service of piped water for human consumption.	The contaminant would not disrupt service of piped water for human consumption.
Backflow would be by either backpressure or backsiphonage.	Backflow would occur by backsiphonage.
Examples: lawn irrigation systems, fire sprinkler systems with chemical additives or antifreeze, sewage, used water, nonpotable water, auxiliary water systems, and mixtures of water and other liquids, gases, or other chemicals.	Examples: food residuals, coffee machines, non-carbonated beverage dispensers, and residential fire sprinkler systems constructed of materials designed for potable water flow.

3. The USBC and the manufacturer's specifications shall be used to determine the appropriateness of the backflow prevention assembly or backflow prevention device application for containment.

C. Owners shall not allow the installation of backflow prevention devices or backflow prevention assemblies with openings, outlets, or vents that are designed to operate or open during backflow prevention:

1. In areas subject to flooding or in pits;

2. In areas with atmospheric conditions that represent a contamination threat to the potable water supply; and

3. In such a manner as to be able to be bypassed.

D. Starting January 1, 2023, persons testing and repairing backflow prevention assemblies and backflow prevention devices shall be certified by a Commonwealth of Virginia tradesman certification program (identified by DPOR as backflow prevention device workers). Until January 1, 2023, persons testing and repairing backflow prevention assemblies and backflow prevention devices shall be qualified to perform such work as demonstrated by possessing a certification or license from a local or state agency having legal authority or shall possess a certificate of completion of applicable vocational training acceptable to the owner.

APPENDIX 2

Cross-Connection Questionnaire

HENRY COUNTY PUBLIC SERVICE AUTHORITY
P.O. BOX 69, COLLINSVILLE, VIRGINIA 24078
PHONE (276)634-4622 | FAX (276)638-7970 | CELL (276)952-5312

Date

Dear Henry County PSA Utility Customer:

The Henry County Public Service Authority (Authority) is conducting a survey questionnaire as part of the Authority's Cross-Connection Control and Backflow Prevention Program to comply with Virginia Department of Health regulations and to support the continued delivery of safe water to our customers. Attached is our questionnaire that is being sent to our commercial and industrial customers. It is our hope that all facilities are already in compliance regarding cross-connection and backflow prevention regulations, and that you will answer all applicable questions provided.

Although the Authority has the primary responsibility for preventing substances from an unknown, questionable, or non-potable source from entering the public water supply, the consumer also shares this responsibility. You have the primary responsibility for preventing pollutants or contaminants from entering the public water supply system from your business.

Your cooperation is needed for us to have an effective program to eliminate cross-connections in our water system. **You are requested to complete and return the attached survey within 30 days from receipt.** Once we have received your completed survey, we will contact you to complete an on-site inspection to determine the most cost-effective means to provide you and the community protection from cross-connections and backflow.

If you have further questions regarding this program, please call me at (276) 634-4622.

Sincerely,

Davis L. Pilson
Pretreatment Coordinator

Henry County Public Service Authority

Industrial and Commercial Facility

Cross Connection Control and Backflow Prevention Program Questionnaire

Please review the plumbing system in your building or business and complete the following questionnaire. Once you have finished, please send back in the envelope provided no later than 30 days from receiving. Thank you.

Facility Information

(Please print following information and update any changes for our records)

1. Facility Name (Business, Co., Corp.): _____
2. Facility Physical Address: _____
3. Mailing Address: _____
4. Contact Person:_____

Day Phone: _____ Emergency Phone: _____

Fax: _____ E-mail: _____

Local Contact if Available (if different from above):_____

Day Phone: _____ Emergency Phone: _____

Fax: _____ E-mail: _____

5. Type of facility: ☐ Industrial ☐ Commercial ☐ Institutional
☐ Other: _____

6. Does this facility require non-interrupted water service? ☐YES ☐NO

	Yes	No	Don't Know
7. Does this facility have a Backflow preventer at the service connection?	☐	☐	☐

Backflow Preventer Manufacturer _____ *Size*_____ *Type*_____ *Serial #*_____

Please send most current Backflow test report

8. Size of water service connection: _____ inch. Is service connection metered? ☐YES ☐NO

	Yes	No	Don't Know
9. Is there any other source of water, such as a private well, at this location?	☐	☐	☐
If yes, is it protected by a backflow preventer?	☐	☐	☐

Backflow Preventer Manufacturer _____ *Size*_____ *Type*_____ *Serial #*_____

10. Is there Auxiliary Water Storage: ☐YES ☐NO
(includes water storage for fire suppression, manufacturing processes or other)

If Yes, Type and capacity in gallons: Elevated Tank _____ Pressure Tank _____
Reservoir _____
Is the Auxiliary Water Storage Covered: ☐YES ☐NO
Filled from Town Water System: ☐YES ☐NO
If no, where from: _____

	Yes	No	Don't Know
11. Do you have a lawn irrigation or sprinkler system?	☐	☐	☐
If yes, is it protected by a backflow preventer?	☐	☐	☐

Backflow Preventer Manufacturer _____ *Size*_____ *Type*_____ *Serial #*_____

	Yes	No	Don't Know
12. Do you have a cooling tower?	☐	☐	☐
If yes, is it protected by a backflow preventer?	☐	☐	☐

Backflow Preventer Manufacturer _____ *Size*_____ *Type*_____ *Serial #*_____

If no, is it protected by an Air Gap?	☐	☐	☐

	Yes	No	Don't Know
13. Do you have a Hot Water or Steam Boiler? (Not water heaters)	☐	☐	☐
If yes, is it protected by a backflow preventer?	☐	☐	☐

Backflow Preventer Manufacturer _____ *Size*_____ *Type*_____ *Serial #*_____

Are any chemicals used in the water?	☐	☐	☐

If yes, list the chemicals and provide Safety Data Sheets (SDS).

	Yes	No	Don't Know
14. Do you have an Aspirator for spraying chemicals?	☐	☐	☐
If yes, list the chemicals used and provide Safety Data Sheets (SDS).			
If yes, is it protected by hose connection vacuum breaker?	☐	☐	☐
(All hose connections should have Hose Connection Vacuum Breakers)			

	Yes	No	Don't Know
15. Do you have a water-cooled compressor?	☐	☐	☐
If yes, is it protected by a testable backflow preventer?	☐	☐	☐

16. Does this facility have a fire protection system? ☐YES ☐NO

If yes, is the fire protection system supplied by a dedicated water line? ☐YES ☐NO

What type of backflow device is being used on the fire protection system?

☐ Single swing check valve (SSCV) ☐ Reduce Pressure Backflow Preventer (RPBP)

☐ Double Check Valve Assembly (DCVA) ☐ Pressure Sensing Device

☐ Other: _____

	Yes	No	Don't Know
17. Do you have a water tank truck filling station or pipe?	☐	☐	☐
Are any chemicals used in the water?	☐	☐	☐
If yes, list the chemicals and provide Safety Data Sheet (SDS).			
If yes, is it protected by a backflow preventer?	☐	☐	☐

Backflow Preventer Manufacturer _____ *Size*_____ *Type*_____ *Serial #*_____

	Yes	No	Don't Know
18. Do you have any outside yard hydrants on this property?	☐	☐	☐
If yes, is it protected by a backflow preventer?	☐	☐	☐

Backflow Preventer Manufacturer _____ *Size*_____ *Type*_____ *Serial #*_____

	Yes	No	Don't Know
19. Do you have a post mix carbonator?	☐	☐	☐
If yes, is it protected by a testable backflow preventer?	☐	☐	☐

Backflow Preventer Manufacturer _____ *Size*_____ *Type*_____ *Serial #*_____

	Yes	No	Don't Know
20. Do you have a water cooler Ice Maker?	☐	☐	☐
If yes, is it protected by a backflow preventer?	☐	☐	☐

Backflow Preventer Manufacturer _____ *Size*_____ *Type*_____ *Serial #*_____

	Yes	No	Don't Know
21. Do you have any pumps hooked to the plumbing system?	☐	☐	☐

If yes, please check all below that apply.

☐ Sewer ☐ Fountain ☐ Pressure Booster ☐ Other: _____

22. Do you have separate process and drinking water systems? ☐YES ☐NO

	Yes	No	Don't Know
23. Do you have any commercial washing machines?	☐	☐	☐
If yes, is it protected by a backflow preventer?	☐	☐	☐

Backflow Preventer Manufacturer _____ *Size*_____ *Type*_____ *Serial #*_____

Do you have any dry-cleaning machines?	☐	☐	☐
If yes, is it protected by a backflow preventer?	☐	☐	☐

Backflow Preventer Manufacturer _____ *Size*_____ *Type*_____ *Serial #*_____

25. Is there a swimming pool? ☐YES ☐NO
Is it filled by a hose? ☐YES ☐NO
Are there pipe connections? ☐YES ☐NO
If pipe connection, is there an air gap at the pool? ☐YES ☐NO; Filter ☐ Other☐

26. Is there a Whirlpool or Jacuzzi Bath? ☐YES ☐NO
If Yes, filled by pipe connection? ☐YES ☐NO

27. Is internal piping color coded? ☐YES ☐NO

28. Is water used in:

	Yes	No	Don't Know
Re-circulating Air Conditioning	☐	☐	☐
Pump Priming	☐	☐	☐
Heat Exchange Units	☐	☐	☐
Sanitary Facilities Only	☐	☐	☐

29. Is process water used wherever possible? ☐YES ☐NO
If yes, is the process water "potable" or "raw"? _____
Is the process water line(s) protected with a backflow device? ☐YES ☐NO

30. Please list any or all water processes that are connected to the water piping system:

_____
_____
_____
_____
_____
_____

If you have any questions about contamination or backflow prevention, please contact Davis L. Pilson, Pretreatment Coordinator at (276)634-4622.

_____	_____	_____
Company Name (Printed)	Print Name	Signature
_____	_____	_____
Contact #	E-mail	Date Completed

APPENDIX 3

Testing, Repair, and Maintenance Record

Backflow Prevention Device
Test and Maintenance Report

(Water Purveyor or Regulatory Agency)

Henry County PSA

Operator ID:

Attention: Cross-Connection Control Section

Device Tracking ID#:
Company ID#:
Company Name:

County or City:
Contact Person:
Company Phone Number

The cross-connection control device detailed hereon has been tested and maintained as required by the (rules or regulations) of (purveyor or regulatory agency) and is certified to comply with these (rules or regulations).

Make of Device _____ Size: _____

Model No. _____ Location: _____

Serial No. _____

Degree of Hazard: _____

Type of BP Assembly	Check Valve #1	Relief Valve #1	Check Valve #2	PVB
_____ RPZ _____ DC _____ PVB	Leaked ☐ Closed Tight ☐ gauge pressure across check valve	Open At _____ PSI ☐ Did not open	Leaked ☐ Closed Tight ☐ gauge pressure across check valve	Air inlet open at _____ PSI ☐ Did not open check valve ☐ Leaked held at _____ PSI Back Pressure
All (static) PSI	_____ PSI		_____ PSI	
Repairs and Materials Used	Cleaned only ☐ **REPLACED** rubber kit ☐ CV assembly ☐ or disc ☐ o-ring ☐ seat ☐ spring ☐ stem/guide ☐ retainer ☐ lock nut ☐ other _____	Cleaned only ☐ **REPLACED** rubber kit ☐ RV assembly ☐ or disc ☐ diaphragm (s) ☐ seat ☐ spring ☐ guide ☐ o-rings ☐ other list below _____	Cleaned only ☐ **REPLACED** rubber kit ☐ CV assembly ☐ or disc ☐ o-ring ☐ seat ☐ spring ☐ stem/guide ☐ retainer ☐ lock nut ☐ other _____	Cleaned only ☐ **REPLACED** rubber kit ☐ CV assembly ☐ disc, air in ☐ disc, CV ☐ spring, air ☐ spring, CV ☐ guide ☐ retainer ☐ o-ring ☐ other list below _____
	Guage pressure across check valve _____ PSI	Relief valve opened at _____ PSI	Guage pressure across check valve _____ PSI	Air inlet _____ PSI Check Valve _____ PSI

NOTE: ALL REPAIRS MUST BE COMPLETED WITHIN 14 DAYS

The above is certified to be true

Firm Name _____

Firm Address: _____

Firm Address _____

Must be Tested By: _____

Certified Tester _____

Certified Tester No _____

Date Tested _____

Next Test Date _____

I hereby certify that this information is correct and the assembly: Passed _____ Failed _____

Backflow Prevention Device
Test and Maintenance Report
(Water Purveyor or Regulatory Agency)
Henry County PSA

Device Tracking ID#:	89
Company ID#:	26
Company Name:	Henry County PSA- P.O. Box 69, Collinsville, VA. 24078

Operator ID: Mike Amos
Attention: Cross-Connection Control Section

County or City:	Collinsville, VA. 24078
Contact Person:	Bill Stevenson
Company Phone Number	(276) 634-2550

The cross-connection control device detailed hereon has been tested and maintained as required by the (rules or regulations) of (purveyor or regulatory

Make of Device: Watts
Size: 1"
Model No.: 909 QT RPZ
Location: Pretreatment area
Serial No: Serial No. 588157-1
Degree of Hazard: High

Type of BP Assembly	Check Valve #1	Relief Valve #1	Check Valve #2	PVB
X RPZ DC PVB Hose Bib	Leaked Closed Tight X Gauge pressure across check valve 7.2 PSI	Open At 6.8 PSI Did open Did not open	Leaked Closed Tight X Gauge pressure across check valve 6.9 PSI	Air inlet open at 6 PSI Did open Did not open Closed check valve Leaked held at 7 PSI Back Pressure
All (static) PSI				
Repairs and Materials Used	Cleaned only **REPLACED** rubber kit CV assembly or disc o-ring seat spring stem/guide retainer lock nut other	Cleaned only **REPLACED** rubber kit CV assembly or disc o-ring seat spring stem/guide retainer lock nut other	Cleaned only **REPLACED** rubber kit CV assembly or disc o-ring seat spring stem/guide retainer lock nut other	Cleaned only **REPLACED** rubber kit CV assembly disc air in disc CV spring air spring CV guide retainer o-ring other
	Guage pressure across check valve PSI	Relief valve opened at PSI	Guage pressure across check valve PSI	Air inlet PSI Check Valve PSI

NOTE: ALL REPAIRS MUST BE COMPLETED WITHIN 14 DAYS

The above is certified to be true
Firm Name: William R. Stevenson Jr.
Firm Address: 3359 River Road Fieldale Va. 24089

Must be Tested By:
Certified Tester: William R. Stevenson Jr.
Certified Tester No: 2717035353
Date Tested: 2/28/2023
Next Test Date: 2/28/2024

Firm Signature: #NAME?
Tester Signature: #NAME?

I hereby certify that this information is correct and the assemb Passed X Failed

Backflow Prevention Device
Test and Maintenance Report
(Water Purveyor or Regulatory Agency)
Henry County PSA

Device Tracking ID#:	525
Company ID#:	215
Company Name:	Press Glass, Inc. 1000 Commonwealth Crossing PkwyRidgeway, VA 24148
County or City:	Ridgeway
Contact Person:	Mr. Robert Janus
Company Phone Number	(336) 932-3647

Operator ID: Davis Pilson
Attention: Cross-Connection Control Section

The cross-connection control device detailed hereon has been tested and maintained as required by the (rules or regulations) of (purveyor or regulatory

Make of Device: Apollo
Size: ½"
Model No.: CVALF4A
Location: Outside vault on side of building
Serial No: 976784
Degree of Hazard: Moderate fire line by-pass

Type of BP Assembly	Check Valve #1	Relief Valve #1	Check Valve #2	PVB
____ RPZ ____ DC ____ PVB	Leaked ☐ Closed Tight ☐	Open At ____ PSI	Leaked ☐ Closed Tight ☐	Air inlet open at ____ PSI ☐ Did not open check valve ☐ Leaked
All (static) PSI	Gauge pressure across check valve ____ PSI	☐ Did not open	Gauge pressure across check valve ____ PSI	held at ____ PSI Back Pressure
Repairs and Materials Used	Cleaned only ☐ **REPLACED** rubber kit ☐ CV assembly ☐ or disc ☐ o-ring ☐ seat ☐ spring ☐ stem/guide ☐ retainer ☐ lock nut ☐ other ____	Cleaned only ☐ **REPLACED** rubber kit ☐ CV assembly ☐ or disc ☐ o-ring ☐ seat ☐ spring ☐ stem/guide ☐ retainer ☐ lock nut ☐ other ____	Cleaned only ☐ **REPLACED** rubber kit ☐ CV assembly ☐ or disc ☐ o-ring ☐ seat ☐ spring ☐ stem/guide ☐ retainer ☐ lock nut ☐ other ____	Cleaned only ☐ **REPLACED** rubber kit ☐ CV assembly ☐ disc ☐ air in disc ☐ CV spring ☐ air spring ☐ CV guide ☐ retainer ☐ o-ring ☐ other ____
	Guage pressure across check valve ____ PSI	Relief valve opened at ____ PSI	Guage pressure across check valve ____ PSI	Air inlet ____ PSI Check Valve ____ PSI

NOTE: ALL REPAIRS MUST BE COMPLETED WITHIN 14 DAYS

The above is certified to be true
Firm Name ____
Firm Address ____

Must be Tested By: 7/3/2024
Certified Tester ____
Certified Tester No ____
Date Tested ____
Next Test Date ____

Firm Signature ____

Tester Signature ____

I hereby certify that this information is correct and the assemb Passed ____ Failed ____

Backflow Prevention Device
Test and Maintenance Report

(Water Purveyor or Regulatory Agency)
Henry County PSA

Device Tracking ID#:
Company ID#:

Company Name:

Operator ID:
Attention: Cross-Connection Control Section

County or City:
Contact Person:
Company Phone Number:

The cross-connection control device detailed hereon has been tested and maintained as required by the (rules or regulations) of (purveyor or regulatory

Make of Device ______________________ Size: ______________________

Model No. ______________________ Location: ______________________

Serial No ______________________

Degree of Hazard: ______________________

Type of BP Assembly	Check Valve #1	Relief Valve #1	Check Valve #2	PVB
____RPZ ____DC ____PVB	Leaked ☐ Closed Tight ☐	Open At ____PSI	Leaked ☐ Closed Tight ☐	Air inlet open at ____PSI ☐ Did not open
All (static) PSI	Gauge pressure across check valve ____PSI	☐ Did not open	Gauge pressure across check valve ____PSI	check valve ☐ Leaked held at____PSI Back Pressure
Repairs and Materials Used	Cleaned only ☐ **REPLACED** rubber kit ☐ CV assembly ☐ or disc ☐ o-ring ☐ seat ☐ spring ☐ stem/guide ☐ retainer ☐ lock nut ☐ other ____	Cleaned only ☐ **REPLACED** rubber kit ☐ CV assembly ☐ or disc ☐ o-ring ☐ seat ☐ spring ☐ stem/guide ☐ retainer ☐ lock nut ☐ other ____	Cleaned only ☐ **REPLACED** rubber kit ☐ CV assembly ☐ or disc ☐ o-ring ☐ seat ☐ spring ☐ stem/guide ☐ retainer ☐ lock nut ☐ other ____	Cleaned only ☐ **REPLACED** rubber kit ☐ CV assembly ☐ disc ☐ air in disc ☐ CV spring ☐ air spring ☐ CV guide ☐ retainer ☐ o-ring ☐ other ____
	Guage pressure across check valve ____PSI	Relief valve opened at ____PSI	Guage pressure across check valve ____PSI	Air inlet ____PSI Check Valve ____PSI

NOTE: ALL REPAIRS MUST BE COMPLETED WITHIN 14 DAYS

The above is certified to be true
Firm Name ______________________
Firm Address ______________________

Must be Tested By: ______________________
Certified Tester ______________________
Certified Tester No ______________________
Date Tested ______________________
Next Test Date ______________________

Firm Signature ______________________

Tester Signature ______________________

I hereby certify that this information is correct and the assembly: Passed ________ Failed ________

Backflow Prevention Device
Test and Maintenance Report

(Water Purveyor or Regulatory Agency)
Henry County PSA

Device Tracking ID#:	146
Company ID#:	53
Company Name:	All American Auto Spa's (closed) 3344 Virginia Ave.Collinsville, Va. 24078
County or City:	Collinsville
Contact Person:	Mr. Stuart Thomas
Company Phone Number:	

Operator ID: Davis Pilson
Attention: Cross-Connection Control Section

The cross-connection control device detailed hereon has been tested and maintained as required by the (rules or regulations) of (purveyor or regulatory

Make of Device	Watts	Size:	2"
Model No.	909 RPZ	Location:	Back of building beside office
Serial No	320487		
Degree of Hazard:	Moderate car wash		

Type of BP Assembly	Check Valve #1	Relief Valve #1	Check Valve #2	PVB
____ RPZ ____ DC ____ PVB	Leaked [ ] Closed Tight [ ]	Open At ____ PSI	Leaked [ ] Closed Tight [ ]	Air inlet open at ____ PSI [ ] Did not open check valve
All (static) PSI	Gauge pressure across check valve ____ PSI	[ ] Did not open	Gauge pressure across check valve ____ PSI	[ ] Leaked held at ____ PSI Back Pressure
Repairs and Materials Used	Cleaned only [ ] **REPLACED** rubber kit [ ] CV assembly [ ] or disc [ ] o-ring [ ] seat [ ] spring [ ] stem/guide [ ] retainer [ ] lock nut [ ] other ____	Cleaned only [ ] **REPLACED** rubber kit [ ] CV assembly [ ] or disc [ ] o-ring [ ] seat [ ] spring [ ] stem/guide [ ] retainer [ ] lock nut [ ] other ____	Cleaned only [ ] **REPLACED** rubber kit [ ] CV assembly [ ] or disc [ ] o-ring [ ] seat [ ] spring [ ] stem/guide [ ] retainer [ ] lock nut [ ] other ____	Cleaned only [ ] **REPLACED** rubber kit [ ] CV assembly [ ] disc [ ] air in disc [ ] CV spring [ ] air spring [ ] CV guide [ ] retainer [ ] o-ring [ ] other ____
	Guage pressure across check valve ____ PSI	Relief valve opened at ____ PSI	Guage pressure across check valve ____ PSI	Air inlet ____ PSI Check Valve ____ PSI

NOTE: ALL REPAIRS MUST BE COMPLETED WITHIN 14 DAYS

The above is certified to be true
Firm Name ____
Firm Address ____

Must be Tested By: 2024-06-28
Certified Tester ____
Certified Tester No ____
Date Tested ____
Next Test Date ____

Firm Signature ____

Tester Signature ____

I hereby certify that this information is correct and the assembly: Passed ____ Failed ____

APPENDIX 4

Letters and Notices Templates

HENRY COUNTY PUBLIC SERVICE AUTHORITY
P.O. BOX 69, COLLINSVILLE, VIRGINIA 24078
PHONE (276)634-4622 | FAX (276)638-7970 | CELL (276)952-5312

2023-06-29

C/O: AESC Admin
RE: Cross-Connection Inspection

Dear: AESC Admin

This letter is to provide you with information about state regulations regarding cross-connection and backflow prevention, which affect your organization and the Henry County Public Service Authority (PSA).

Under the Virginia Department of Health's Waterworks Regulations, Article 3, the PSA is required to prevent water from unauthorized sources, or any other substances, from entering the PSA's public water system. The Virginia Department of Health periodically audits our efforts to comply with this law; as a result; we are formalizing our documentation procedures. Enclosed is a summary of responsibilities of your organization as well as the PSA's with regard to this legislation, and a list of steps the PSA is preparing to undertake to ensure that its role is properly carried out.

Please keep in mind that this program is a local state and EPA requirement being imposed both on your company system and the PSA, and we must work together in order to stay in compliance.

The following companies have certified personnel to complete the required testing: Bryants Plumbing and Heating (276) 638-2321, Reliable Welding and Fabrication (276) 629-2593, Handy Rentals (276) 638-5240, and Moore's Electric (800) 789-7199. Since the backflow device is new, a test will not be required **2023-06-29**

Please keep a copy for your records and email the original back to me for PSA records.

Each year I will mail you a copy of the test report one (1) month prior to your test date so that your company devices can be tested. The expense associated with this test is the responsibility of each owner/operator.

If you have further questions regarding this program, please call me at (276) 634-4622.

Sincerely,

Davis L. Pilson

Davis L. Pilson, Pretreatment Coordinator

Consumer responsibilities include that

- Consumer responsibilitiy begins at the point of delivery from the public potable water system and includes all of the companies water systems.
- At their cost, the consumer is required to install, operate, test, and maintain approved backflow prevention devices as directed by the PSA's Engineering Division.
- The consumer is required to maintain accurate records of the annual required tests and subsequent repairs made to such devices, and provide the PSA with copies on an annual basis. The records must be kept on forms approved and provided by the PSA

PSA rights and responsibilities include that:

- PSA representatives may, at any reasonable time, enter properties served by a connection to its water system for the purpose of inspecting piping systems for cross-connections.
- The PSA may deny or discontinue water service to a consumer if required backflow prevention devices are not installed.
- In the event that requires devices have been removed or bypassed, the PSA may take positive actionm including service termination, to ensure that the PSA system is adequately protected at all times.
- Water service to such premises may not be restored until deficiencies have been corrected or eliminated to the PSA's satisfaction and in accorance with Commonwealth of Virginia Waterworks Regulations.

Steps the PSA intends to take to fulfill its responsibilities include:

- Calling on each water customer affected by the cross-connection program and informing them of the PSA's role and efforts to comply with this regulation, and to determine the appropriate contact person within each organization.
- Gathering of any pertinent information from the customers regarding existing backflow prevention devices.
- Inspection of any devices in place, and review of procedured which must be followed by the customer, including
    - Annual testing;
    - Certification that such testing has been condute
    - Submission of a letter stating whether modification have been made to backflow devices.
    - Scheduling of date and time for the next annual inspection; and
    - Maintenance of inspection reports and other pertinent records for 10 years.

HENRY COUNTY PUBLIC SERVICE AUTHORITY
P.O. BOX 69, COLLINSVILLE, VIRGINIA 24078
PHONE (276)634-4622 | FAX (276)638-7970 | CELL (276)952-5312

6/29/2023

Non-Compliant

C/O: Mr. Allen French
RE: Backflow Testing Report Letter

Dear Mr. Allen French

Our records indicate that your backflow device(s) were last test 6/29/2023
At that time, your company's test results were not in compliance. If the devices have been retested, repaired, or replaced, please email copy for the PSA records. If you have not had the test completed, your company needs to have the test completed ASAP. Please remember this test is required to satisfy the State Health Department, BOCA, and Henry County Public Service Authority requierments.

Once you have had the test completed, please remember to keep a copy for your records and email the original forms back to me for the PSA records.

The following complanies have certified personnel to complete the required testing: Bryants Plumbing and Heating (276) 638-2321, Reliable Welding and Fabrication (276) 629-2593, Handy Rentals (276) 638-5240, and Moore's Electric (800) 789-7199. If you have any questions on how to get someone from your company certified, please give me a call. If there is a new manager, please let me know.

If you have further questions regarding this program, please call me at (276) 634-4622.

Sincerely,

Davis L. Pilson

Davis L. Pilson
Pretreatment Coordinator

HENRY COUNTY PUBLIC SERVICE AUTHORITY
P.O. BOX 69, COLLINSVILLE, VIRGINIA 24078
PHONE (276)634-4622 | FAX (276)638-7970 | CELL (276)952-5312

2023-06-29

Past Due

C/O: AESC Admin
RE: Backflow Testing Report Letter

Dear: AESC Admin

Our records indicate that your backflow device(s) were tes **2023-06-29**
At this time, we have not recivied the copy of your company's annual test results. If the tests have been completed, please mail or fax a copy for the PSA records. If you have not had the test completed, your company needs to have the test completed As soon as possible. Please remember this test is required to satisfy the Virginia Department of Health, Building Code, and Henry County Public Service Authority requierments.

Once you have had the test completed, please remember to keep a copy for your records and email the completed forms back to me for the PSA records.

The following companies have certified personnel to complete the required testing: Bryants Plumbing and Heating (276)638-2321, Reliable Welding and Fabrication (276) 629-2593, Handy Rentals (276) 638-5240, and Moore's Electric (800)789-7199. If you have any questions about how to have someone from your company certified, or if there is a change in facility manager, please call the PSA.

If you have further questions regarding this program, please call me at (276) 634-4622.

Sincerely,

Davis L. Pilson

Davis L. Pilson
Pretreatment Coordinator

HENRY COUNTY PUBLIC SERVICE AUTHORITY
P.O. BOX 69
COLLINSVILLE, VIRGINIA 24078

PHONE (276)634-4622 FAX (276)638-7970 CELL (276)952-5312

March 21, 2023

C/O: Bill Stevenson

RE: Backflow Testing Report Letter

Dear: Bill Stevenson, Maint. Superintendent

Once again it's time to have your annual backflow device tested at your facility. Your company backflow devices will need to be tested by the date indicated on each test certificate. This test is due in order to meet State Health Department, BOCA and Henry County Public Service Authority requirements.

Once you have had the test completed, please remember to keep a copy for your records and mail the original forms back to me for the PSA records.

The following companies have certified personnel to complete the required testing: Bryants Plumbing and Heating (276)638-2321, Reliable Welding and Fabrication (276)629-2593, Handy Rentals (276)638-5240, and Moore's Electric (800)789-7199.

Please be sure that all items highlighted are completed. If you have further questions regarding this program, please give me a call. Here is the information you requested, please note the due date for the test. I will make the new dates once I receive the forms back from you.

Sincerely,

Davis L. Pilson

Digitally signed by Davis Pilson
DN: cn=Davis Pilson, o=Henry County PSA, ou, email=dpilson@co.henry.va.us, c=US
Date: 2023.03.21 15:59:51 -04'00'

Davis L. Pilson
Pretreatment Coordinator

[DATE]

[CUSTOMER NAME] Account #:
[LOCATION ADDRESS 1] Serial #:
[LOCATION ADDRESS 2] Meter #:
[LOCATION ADDRESS 3] Device:

Notice of Violation – Cross Connection Control Program

Dear Customer:

The Virginia Department of Health Waterworks Regulations [12 VAC 5-590-600] and the Henry County Public Service Authority Rules and Regulations Section 12. Cross-Connection Control/ Backflow Prevention Program requires that facilities that require backflow prevention comply with these regulations and the Henry County Public Service Authority Cross-Connection Control and Backflow Prevention Program. These regulations are established to protect the quality of water provided by the Authority to its users. The Authority believes that (*insert name of facility*) is in violation of the following requirement(s).

List applicable violations here

In order to avoid possible disconnection of water service to your property, (*insert name of facility*) must

List corrective action(s) and deadline(s), typically 30 days unless there is an imminent hazard to the waterworks in which case the period may be shorter.

If you have further questions regarding this program, please call me at (276) 634-4622.

Sincerely,

Davis L. Pilson, Pretreatment Coordinator

APPENDIX 5

Public Education Brochure

Solutions:

Solution 1 - Anti-siphon Ballcocks:

For example, toilet tanks contain a ballcock device which allows water into the tank after flushing. Older style ballcocks do not have an anti-siphon feature and can allow water from the toilet tank to backflow into your drinking water line. (fig. 1) A simple anti-siphon ballcock (fig. 2) installed with a 25mm (1") air gap above the overflow tube will prevent contaminated tank water from entering your water supply

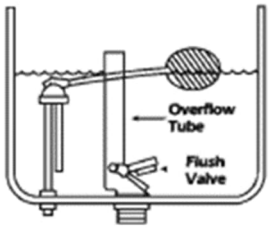


Fig. 1

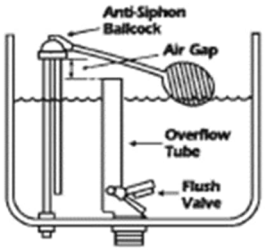
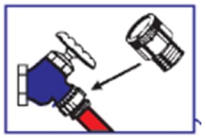
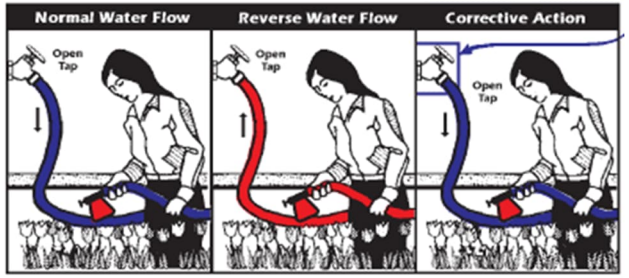


Fig. 2

Solution 2 - Hose Connection Vacuum Breakers:

You can also prevent back siphonage by using an inexpensive, easy-to-install hose connection vacuum breaker. This one-way valve allows water to flow from the tap, but not back in. (Drainable vacuum breakers should be installed on all taps which could freeze.)

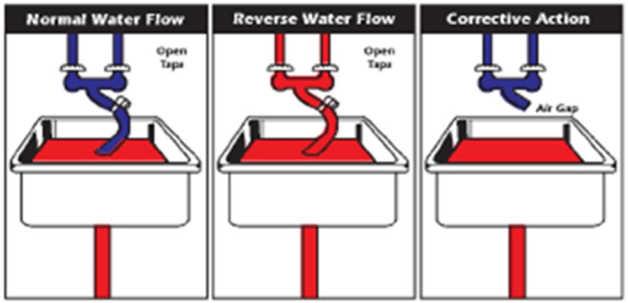




Solutions (continued):

Solution 3 - Air Gaps:

Leave a gap of at least one inch or two times the pipe diameter (whichever is greater) between the end of a hose and a source of contamination. This eliminates a link between the two. Never leave a hose where it can suck contaminants back into the drinking water supply, such as in a swimming pool, bathtub, sink or fish tank.



More Information is Available:

EPA Best Practices Guide:
https://www.epa.gov/sites/default/files/2015-09/documents/epa816f06035.pdf

VDH Effective Cross Connection Control Programs at:
https://www.vdh.virginia.gov/content/uploads/sites/14/2024/11/Cross-Connection-Control-Hip-Pocket-11-2024.pdf

Henry County Public Service Authority:
https://www.henrycountyva.gov/217/Public-Service-Authority

For questions regarding the Henry County Public Service Authority's Backflow Prevention Program, please contact:

Davis Pilson at (276) 634-4622

dpilson@henrycountyva.gov

Henry County Public Service Authority

Backflow Prevention: A Guide for Residents

Safe Drinking Water is Everyone's Responsibility

How Contamination Occurs:

Backflow occurs when a **backsiphonage** or **backpressure** condition is created in a water line.

Backsiphonage may occur due to a loss of pressure in the water distribution system during a high withdrawal of water for fire protection, a water main or plumbing system break, or a shutdown of a water main or plumbing system for repair. A reduction of pressure below atmospheric pressure creates a vacuum in the piping. If a hose bib was open and the hose was submerged in a wading pool during these conditions, the non-potable water in the pool would be siphoned into the house's plumbing and back into the public water system.

Backpressure may be created when a source of pressure, such as a pump, creates a pressure greater than that supplied from the distribution system. If a pump supplied from a non-potable source, such as a landscape pond, was accidentally connected to the plumbing system, the non-potable water could be pumped into the potable water supply.

Frequently Asked Questions?

What is Potable Water?

Potable Water is water which is safe for human consumption, free from harmful or objectionable materials, as described by the health authority.

What is a Cross Connection?

A cross connection is any link between potable (drinking) water and any other substance not intended for human consumption.

What is Backflow?

Backflow is the reversal of the normal flow of any substance back into the potable water system which could cause contamination.

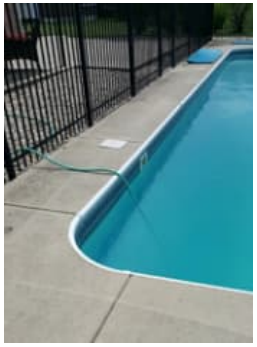
What is a backflow preventer?

A backflow preventer is a mechanism or a means to prevent backflows from occurring by creating a physical barrier or eliminating cross-

Common Household Hazards

- Toilets
- Boilers
- Irrigation systems
- Dialysis equipment
- Dishwashers
- Hoses connected to sinks/faucets, pools, sprayers for chemical applications
- Water Treatment Device

What might a residential cross-connection look like?

How to Prevent Contamination of Your Drinking Water?

Don't:

X Submerge hoses in buckets, pools, tubs, sinks, ponds, etc.

X Use spray attachments without a backflow prevention device.

X Connect waste pipes from water softeners or other treatment systems to the sewer, submerged drain pipe, etc.

X Use a hose to unplug blocked toilets, sewers, etc

Do:

✓Keep the ends of hoses clear of all possible contaminants.

✓If not already equipped with an integral (built-in) vacuum breaker, buy and install hose bib type vacuum breakers on all threaded faucets around your home. These devices are inexpensive and are available at hardware stores and home improvement centers.

✓Install an approved backflow prevention assembly on all underground lawn irrigation systems.

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