CROSS CONNECTION CONTROL PROGRAM

RESIDENTIAL & COMMERCIAL BACKFLOW PREVENTION FAQ

1. Why does the Town of Kilmarnock have a Backflow Prevention and Cross Connection Control Program?

First and foremost because we want to ensure that our water distribution system remains safe from harmful substances. It is also required by the Virginia Department of Health's (VDH) Waterworks Regulations. We as your water system operator are required to have this program as a condition for the issuance of our water system operator's license. It is provided for in Section 50: Utilities Section III of the Town Code.

2. What is a cross-connection?

A cross-connection is any temporary or permanent connection between a public water system (i.e., drinking) water system and any source or system containing nonpotable water or other substances. Potable water is water that is suitable for drinking. An example is the piping between a public water system and an auxiliary water system, cooling system, well, or irrigation system.

Cross-connections are the links through which it is possible for contaminating materials to enter a potable water supply.

Cross connections or backflow happens when the pressure of the polluted source exceeds the pressure of the potable source.

3. What is backflow?

Backflow is the undesirable reversal of flow of nonpotable water or other substances through a cross-connection and into the piping of a public water system. There are two types of backflow: backpressure and backsiphonage.

4. What is backpressure?

Backpressure is backflow caused by a downstream pressure that is greater than the upstream or supply pressure in a public water system. Backpressure (i.e., downstream pressure that is greater than the potable water supply pressure) can result from an increase in downstream pressure, a reduction in the potable water supply pressure, or a combination of both. Increases in downstream pressure can

be created by pumps, temperature increases in boilers, etc. Reductions in potable water supply pressure occur whenever the amount of water being used exceeds the amount of water being supplied, such as during water line flushing, fire fighting, or breaks in water mains.

5. What is backsiphonage?

Backsiphonage is backflow caused by a negative pressure (i.e., a vacuum or partial vacuum) in a public water system. The effect is similar to drinking water through a straw. Backsiphonage can occur when there is a stoppage of water supply due to nearby fire fighting, a break in a water main, routine maintenance flushing, or any other situation that causes a significant loss in water system pressure.

6. Why do water system operators need to control backflow?

Backflow into a public water system can pollute or contaminate the water in that system (i.e., backflow into a public water system can make the water in that system unusable or unsafe to drink), and each water supplier has a responsibility to provide water that is safe to drink under all foreseeable circumstances.

Furthermore, consumers generally have absolute faith that water delivered to them through a public water system is always safe to drink. For these reasons, each water supplier must take reasonable precautions to protect its public water system against backflow.

7. How often is my residence\business inspected for cross connections?
Each residence is required to be checked every three (3) years for cross connections. Commercial installations are required to inspect internal piping annually.

8. If I have a cross connection, how often does the connection itself get tested? The connection must be tested annually with a copy of the inspection report sent to the Town of Kilmarnock.

9. Are all residential homes required to have backflow assemblies?

At this time, we are focused on those residential homes that have irrigation and sprinkler systems. These are required to have backflow assemblies on those systems.

10. Why are irrigation systems considered to be hazardous to the water system?

Irrigation systems include but are not limited to agricultural, residential, and commercial applications. The Virginia Department of Health classifies lawn sprinkler systems and irrigation systems as a high hazard for several reasons. Sprinklers,

bubbler outlets, emitters, and other equipment are exposed to substances such as fertilizers, fecal material from pets or other animals, pesticides, and other chemical and biological contaminants. Sprinklers may remain submerged under water after use or storms. Should the water system pressure suddenly decrease, such as in the case of a water main break, line flushing, or during a major fire involving multiple fire hydrants, these harmful substances can be back-siphoned into the water distribution system. They may be subject to various onsite conditions such as additional water supplies, chemical injection, booster pumps, and elevation changes. All of these conditions must be considered when determining backflow protection. Some hazards relating to irrigation systems are:

1. Fertilizers: Ammonia salts, ammonia gas, phosphates, potassium salts.
2. Herbicides: 2,4-D, dinitrophenol, 2,4,5-T, T-pentachlorophenol, sodium chlorate, borax, sodium arsenate, methyl bromide.
3. Pesticides: TDE, BHC, lindane, TEPP, parathion, Malathion, nicotine, MH, and others.
4. Fecal matter: Animal (domestic and non-domestic).

11. What type of backflow prevention assemblies are allowed in irrigation systems?

For those irrigation systems connected to the Town of Kilmarnock potable water system, the appropriate protection is a Reduced Pressure Principle (RP) backflow prevention assembly. A Pressure Vacuum Breaker (PVB) may be used for service protection if the Town of Kilmarnock potable water service is the sole source of supply to the premises or property, if it is used strictly for irrigation, and there is no means or potential for backpressure (IE: PVB's protect against backsiphonage only). Any irrigation system that has a means to introduce chemicals into the Town of Kilmarnock potable water system shall always be protected against backflow by a RP backflow preventer.

Approved backflow prevention devices and assemblies are those that meet AWWA (American Water Works Association) standards, and are approved by ASSE (American society of Safety Engineers) and the USC-FCCC (University of Southern California Foundation for Cross Connection Control and Hydraulic Research).

*** *Please note that Double Check Valve Assemblies (DCVA) are not allowed in irrigation systems. Irrigation systems are considered as a "high hazard" and therefore are not allowed to use a DCVA.*

12. How do I know if I have a backflow prevention assembly?

Generally, the backflow prevention assembly is normally located as close as possible to the water service connection, but must remain on private property. It is usually installed outdoors and in a "loop" of your irrigation system that extends above the ground. (See pictures below)

RP Assembly

PVB Assemblies

13. Is there a minimum height that the backflow assembly must be installed?

Yes. Backflow prevention assemblies should be installed in accordance with the manufacturer's installation instructions, the Uniform Statewide Building Code and any additional instructions offered by the Town of Kilmarnock. Regulations regarding flow orientation and proper access to the backflow preventer should also be followed.

At a minimum the following guidelines should be followed:

PVB's:
- Must be installed at least 12 inches above <u>all downstream piping</u> in the system. (The height of pop up sprinkler heads should be included in this requirement)
- The height should not exceed 60 inches and the assembly should be accessible for testing and servicing.
- The assembly should be properly supported.
- No chemicals allowed

RP's:
- Shall be installed a 12 to 36 inches above grade and not subject to flooding or submersion.
- The assembly should be properly supported and accessible for testing and servicing.
- Must be used if chemicals will be introduced in the irrigation system.

****Note: Customers should take necessary actions to ensure that their backflow prevention assembly does not get damaged during freezing temperatures.*

Properly installed RP Assembly

Properly installed PVB Assembly

RP installed too close to the ground

PVB installed too low

14. How often do I have to have my backflow assembly tested?

They must be tested at least annually. Backflow assemblies are mechanical assemblies and as such they are subject to fail, which is why the VDH (Virginia Department of Health) requires that they be tested at least once a year. In addition, newly installed backflow assemblies, and backflow assemblies that are repaired or relocated must also be tested. This requirement is echoed by Virginia Maintenance Code, International Plumbing Code, and the Environmental Protection Agency's Cross Connection Control Manual.

15. How much will the inspections/maintenance cost?

Though the Town of Kilmarnock monitors the installation and maintenance of these assemblies as required by the Virginia Department of Health, we do not have any influence or control over the contractors pricing and it can vary from one testing contractor to another. We also understand that group pricing, whether through a neighborhood or homeowners association is an option that may lower your annual testing cost. Combining the test with other irrigation system maintenance may also net a savings for the homeowner. *The Town of Kilmarnock does not endorse, guarantee, or warrant any work performed by the testing contractors. All interactions between customers and contractors are private transactions between these two entities.*

16. Will there be a list of certified testers available to us? Where can we view this list?

Yes, a list of certified testers will be sent along with a letter reminding the homeowner to obtain the test. The list can also be found on the Town of Kilmarnock website, www.kilmarnockva.com. You should also check the website each year to ensure that your chosen tester is still a properly certified and approved tester as certifications are subject to expiration and revocation. *The Town of Kilmarnock does not endorse, guarantee, or warrant any work performed by the testing contractors. All interactions between customers and contractors are private transactions between these two entities.*

17. Why is the testing contractor that I used before not on your list now?

Backflow Prevention Device Worker certifications are subject to expiration and revocation. You should inquire of your chosen tester's appropriate certification, and also check the Town of Kilmarnock website each year to ensure that your chosen tester is still a properly certified and approved tester. If you desire, you may also check for your chosen contractor's certification at the Commonwealth of Virginia Department of Professional and Occupational Regulation website at www.dpor.virginia.gov.

18. Will I receive notification when to perform my test?

Yes – The Town of Kilmarnock sent notices to our residential & commercial system owners in June of 2010. Any new irrigation system installations that occur after June 2010 or any existing owner who does not receive a notification letter, should still contact a certified backflow tester to arrange to have your backflow assembly tested. We also track the backflow assembly information in our data base which will generate a reminder letter to our customers reminding them when their annual test is due.

19. What if I don't receive a letter?

The absence of a reminder letter does not void the requirement of the annual inspection required by the Town of Kilmarnock Backflow Prevention and Cross Connection Program. Please note that the Town of Kilmarnock has attempted to mail a letter to all water system users. We will also post information on the Town's website, submit information in local newspapers, and may include information with your water bill. Should you not receive a letter please contact us at (804) 435-1552 so that we can properly monitor and send you the annual testing notifications.

20. What do I do with my test report?

Your chosen tester should send a copy to the Town within 30 days of the test date and provide you a copy for your records. Please retain your copy in your records in case the contractor fails to send it.

21. What happens if my backflow assembly fails the test?

If your assembly fails the test, you should make arrangements to have the assembly repaired or replaced as required, and retested within 15 days.

22. What if I do not get my backflow assembly tested or fail to have an improperly working backflow assembly repaired or replaced?

The Town hopes that you will share our desire to maintain a safe water distribution system. However, if you choose to not comply with this mandated program, you may risk a potential loss of water service until this is resolved.

23. Are any other backflow devices required for residential homes?

Yes – All outdoor faucets and hose bibs that have threaded connections where a garden hose can be attached are required to have backflow prevention protection. This may be in the form of a frost-proof automatic draining outdoor faucet with built in backflow preventer or by the use of a screw on hose Bibb vacuum breaker (HBVB) that can be purchased at local hardware or home supply stores.



Outdoor faucets with built in backflow protection



Screw on type Hose Bibb Vacuum Breakers

****Note: Customers should take necessary actions to ensure that their backflow prevention device or plumbing does not get damaged during freezing temperatures.*

24. Should a Hose Bibb Vacuum Breaker be used on frost-free hydrants?

Yes – but the device must be equipped with means to permit the line to drain after the hydrant is shut-off. Be sure it is equipped to drain the line to prevent freezing during our colder months of the year. Most manufacturers sell a frost proof model which has a means to allow the homeowner to drain the line to prevent damage during freezing temperatures.

****Note: Customers should take necessary actions to ensure that their backflow prevention device or plumbing does not get damaged during freezing temperatures.*