

# ***CROSS- CONNECTION CONTROL***

***POLICY MANUAL***



***BEAUFORT-JASPER  
WATER & SEWER AUTHORITY***

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**RESOLUTION**

**ADOPTING BEAUFORT-JASPER WATER AND SEWER AUTHORITY CROSS-CONNECTION CONTROL POLICY MANUAL.**

**WHEREAS**, Beaufort-Jasper Water and Sewer Authority operates a network of over 925 miles of water distribution lines; and,

**WHEREAS**, the inadvertent connection of a water distribution line to another water source or a source of pollution (a cross connection) could create damage to the water system and a serious risk to public health; and,

**WHEREAS**, the South Carolina Department of Health and Environmental Control requires that BJWSA develop and implement a program for the control of cross connections; and,

**WHEREAS**, the staff has developed a Cross-Connection Control Policy Manual that provides policy and procedures for the use of the best available control technology and a targeted enforcement program; and,

**WHEREAS**, the Authority's Capital Projects Committee has reviewed the Cross-Connection Control Policy Manual and recommends its adoption by the BJWSA Board of Directors,

**NOW, THEREFORE, BE IT RESOLVED** by the members of the Beaufort-Jasper Water and Sewer Authority duly assembled, that the Cross-Connection Control Policy Manual is hereby adopted.

**ADOPTED**, this 15 day of December, 2005 in Regular Session.

(SEAL)

**BEAUFORT-JASPER WATER AND SEWER  
AUTHORITY, SOUTH CAROLINA**

By:   
Michael L. Bell, Vice-Chairman

Attest:

  
Dr. David M. Taub, Secretary/Treasurer

Resolutions/Cross-Connection Control Policy Manual

## **INTRODUCTION**

Under the Safe Drinking Water Act (SDWA), a water supplier is responsible for preventing polluted or contaminated water, gas, or other substances from entering a public drinking water system. In addition, South Carolina Department of Health and Environmental Control regulations require particular methods and procedures be followed in the design, operation, and maintenance of potable water systems, and mandate compliance with specific technical guidelines. The development of an organized program that identifies, controls, and/or eliminates the interconnections (cross-connections) between drinking water systems (potable) and other water systems of questionable quality (non-potable) is also required. To comply with these requirements, a Cross-connection Control Program must be developed, implemented, and maintained.

## **REGULATION**

The South Carolina Department of Health and Environmental Control (the Department) defines cross-connection as any actual or potential connection or structural arrangement between a public water supply and any other source or system through which it is possible to introduce into any part of the potable system any used water, industrial fluid, gas or substance other than the intended potable water which the system is supplied. Bypass arrangements, jumper connections, removable sections, swivel or changeover devices and other temporary, or permanent devices through which or because of which backflow can or may occur.

The State Primary Drinking Water Regulations promulgated pursuant to Section 44-55-30 through 44-55-60 of the 1976 South Carolina Code of Laws, R-61-58.7F. Cross-Connection Control also mandates that:

1. If bacteriological or chemical monitoring results, complaints from individuals, of sanitary surveys findings indicate the need, the Department may require a public water supply to develop and carry out a program for the detection, elimination and prevention of cross-connections.
2. No person shall install, permit to be installed or maintain any cross-connection between a public water supply and any other water supply, sewer, or water line from any container or liquids unless a approved backflow prevention device is installed between the public water supply and the source of contamination.
3. Should the connection be between two approved public water supplies, common gate or check valves may be used provided this has the approval of both suppliers of water and the Department.

4. Should the connection be between an approved public water supply and other water supply not hazardous to health but not meeting the standards of the approved public water supply and not cross-connected within its system with a potentially dangerous water or liquid, any approved double check valve assembly may be used.
5. Should the connection be between an approved public water supply and to a service or other water supply which has or may have any material in the water dangerous to health, or connected to any material dangerous to health that is or may be handled under pressure, or subject to negative pressure, protection shall be by air gap separation. An approved reduced pressure principle backflow prevention device may be substituted for a air gap, provided this alternative is acceptable to the supplier of water and the Department.
6. Residential Lawn irrigation systems low hazard- Each public water system which has low hazard residential irrigation system directly or indirectly connected to their public water system must have a written low hazard residential lawn irrigation system cross connection policy.
7. Each device shall be tested by a certified tester after installation and before use by the customer. Each device shall be tested at least annually by a certified tester. If residential irrigation, when meters are changed out or ever 15 years.
8. Each supplier of water is to receive a written report of the inspection and testing results for all devices tested within the distribution system. The report shall be submitted by the certified tester making the inspection and test.

In compliance with this State mandate, the following is the Beaufort-Jasper Water and Sewer Authority's (hereinafter referred to as BJWSA) Cross-connection Control Policy.

## OVERVIEW

Drinking water is assumed to be safe. Advanced technology in water treatment presumably provides high quality drinking water to the tap. To ensure this, it is necessary that physical interconnections (cross-connections) between pipes containing safe drinking water and other pipes containing water of questionable quality are eliminated or protected against the possibility of reverse flow. If the questionable water was to enter the safe drinking water, contamination or pollution may result. Surveillance of drinking water systems to identify these interconnections is essential and regulatory. Piping and plumbing systems are continually being installed, repaired, altered, or extended. A program of cross-connection control is imperative to protect the health of the consumer.

## SECTION 1 – GENERAL POLICY

The purpose of this policy is:

- a. To protect BJWSA's public potable water supply from the possibility of contamination or pollution by isolating within the customer's internal distribution system(s) or the customer's private water system(s) such contaminants or pollution that could backflow into BJWSA's water distribution system; and,
- b. To promote the elimination or control of existing cross-connections, actual or potential, between the customer's in-plant potable water system(s) and non-potable water systems, plumbing fixtures, and industrial piping systems; and
- c. To provide for the maintenance of a continuing program for cross-connection control that will systematically and effectively prevent the contamination or pollution of all potable water systems.

## DEFINITIONS

The following words, terms and phrases shall have the meanings ascribed to them in this section, when used in the interpretation and enforcement of this article:

**Approved backflow prevention assemblies** are defined on pages 14-15.

**Auxiliary water supply**, auxiliary: The term "auxiliary water supply" shall mean any water supply on or available to the premises other than the BJWSA's approved public potable water supply. These auxiliary waters may include water from another purveyor's public potable water supply or any natural source such as a well, spring, river, stream, etc., or used waters or industrial fluids. They may be polluted or contaminated or they may be

objectionable and constitute an unacceptable water source over which BJWSA does not have sanitary control.

**Backflow** shall mean the undesirable reversal of the intended direction of flow in a potable water distribution system as a result of a cross connection.

**Backflow prevention device or assembly** shall mean an assembly that has been manufactured in full conformance with the standards established by the American Water Works Association titled:

AWWA C510-89 – Standard for Double Check Valve Backflow Prevention Assembly, and

AWWA C511-89 – Standard for Reduced-Pressure Assembly

Specific devices approved for use in BJWSA's water system are defined on pages 14-15.

**Backpressure** shall mean any elevation of pressure in the downstream piping system (caused by pump, elevated tank or piping, steam and/or air pressure) above the water supply pressure at the point which would cause, or tend to cause, a reversal of the normal direction of flow.

**Back-siphonage** shall mean the flow of water or other liquids, mixtures or substances into the potable water system from any source other than its intended source, cause by the reduction of pressure in the potable water system.

**BJWSA's system** shall consist of the source facilities and the distribution system, and shall include all those facilities of the water system under the complete control of BJWSA, up to the point where the customer's system begins. This is normally the property valve, which is located at the property line/right of way.

**Bypass** shall mean any system of piping or other arrangement whereby water from the public water system can be diverted around a backflow prevention device.

**Consumer or customer** shall mean any person, firm, or corporation using or receiving water from Beaufort-Jasper Water and Sewer's water supply.

**Contamination** shall mean an impairment of the quality of water by sewage or industrial fluids or waste to a degree which creates an actual hazard to public health through poisoning or through the spread of disease.

**Cross connection** shall mean any physical connection or potential connection whereby the public water system is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture or other waste or liquid of unknown or unsafe quality, which may be capable of imparting contamination to the public water system as a result of backflow or back-siphonage. Bypass



arrangements, jumper connections, removable sections, swivel or changeover devices, through which or because of which backflow could occur, are considered to be cross connections.

**Hazard** or “degree of hazard” shall be derived from the evaluation of a health, system, plumbing, or pollution hazard.

Health hazard shall mean an actual or potential threat or contamination or pollution of physical or toxic nature to the public potable water system or the consumer’s potable water system to such a degree or intensity that there would be a danger to health.

**Industrial fluids** shall mean any fluid or solution which may be chemically, biologically, or otherwise contaminated or polluted in a form or concentration such as would constitute a health system, pollution, or plumbing hazard if introduced into an approved water supply.

**Industrial piping system** shall mean any system used by the consumer for transmission of or to confine or store any fluid, solid, or gaseous substance other than an approved water supply. Such a system would include all pipes, conduits, tanks, receptacles, fixtures, equipment, and appurtenances used to produce, convey, or store substances which are or may be polluted or contaminated.

**Pollution** shall mean an impairment of the quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic use.

**Potable water** shall mean water from any source which has been investigated by the health agency having jurisdiction, and which has been approved for human consumption.

**Residential Lawn irrigation ( Low Hazard)** Shall mean any irrigation system on a piece of property that has no commercial active associated with this property and no chemical injection system.

**Service connection**: shall mean the terminal end of a service **connection** from the public potable water system. There should be no unprotected takeoffs from the service line ahead of any meter or backflow prevention device located at the point of delivery to the consumer’s water system.

**Water System** shall be considered as BJWSA’s system and the consumer’s system.

## **RESPONSIBILITIES**

1. The responsibilities of BJWSA’s cross-connection program are as follows:



- a. To prevent contamination to the public water system due to the introduction of contaminants or pollutants through a service connection. This responsibility begins at the source and includes the entire water supply distribution system and ends at the user connections. If, in the judgment of BJWSA, an approved backflow prevention assembly is required for the safety of the water system, BJWSA shall give notice in writing to the customer to have installed such approved backflow prevention assembly(s) at specific location(s) on their premises. The customer shall immediately have installed such approved assembly(s) at their expense; and, failure, refusal, or inability on the part of the customer to install, have tested, and maintained said assembly(s) shall constitute grounds for discontinuing water service to the premises until such requirements have been satisfactorily met.

Wholesale customers shall promulgate policies that meet or exceed those of BJWSA's Policy or shall comply with these policies at the point of connection to BJWSA's system.

- b. To promulgating and enforcing laws, rules, regulations, and policies necessary to carry out designated responsibilities.
  - c. To make inspections and determinations of the degree of hazard customers present to BJWSA's system.
  - d. To make and maintain all necessary records in accordance with this policy.
  - e. To maintain a list of approved cross-connection prevention assemblies for use in BJWSA's system.
2. The responsibilities of water consumers to the cross-connection program are as follows:
- a. The water user has the primary responsibility to keep contaminants out of the potable water system. This responsibility begins at the user connection and includes any and all water distribution piping on the premises. If a cross-connection or a potential for a cross-connection exists, the water user, at the water user's expense, must install, have tested and maintain approved backflow prevention device as required by BJWSA's policy.
  - b. In the event of accidental cross-connection to BJWSA's water supply system, the user shall immediately notify BJWSA and must confine further spread of pollution or contamination within the user's premises.

3. The responsibility of the installer of cross-connection prevention assemblies:
  - a. To make sure that each assembly is working properly. The assembly shall be tested by a certified tester when installed prior to the system being placed into service.

## **SECTION 2 – REQUIREMENTS**

1. No water service connection to any premises shall be installed or maintained by BJWSA unless the water supply is protected as required by state law and regulations and this Cross-connection Prevention Policy. Service of water to any premise shall be discontinued by BJWSA if a backflow prevention assembly required by this Cross-connection Control Policy is not installed, tested, and maintain, or if it is found that a backflow prevention assembly has been removed, by-passed, or if an unprotected cross-connection exists on the premises. Service will not be restored until such conditions or defects are corrected.
2. The customer's system should be open for inspection at all reasonable times to authorized representatives of the Department of Health and Environmental Control and BJWSA to determine where cross-connection or other structural or sanitary hazards, including violations of the regulation, exist. When such a condition becomes know, BJWSA shall deny or immediately discontinue service to the premises by providing for a physical break in the service line until the customer has corrected the condition(s) in conformance with state, county, town, or city statutes relating to plumbing and water supplies and the regulations adopted pursuant hereto.
3. An approved backflow prevention assembly shall be installed on each service line to a customer's water system at or near the property line or immediately inside the building being served; but in all cases, before the first branch line leading off the service line.
4. In the case of premises having (1) internal cross-connections that cannot be permanently corrected and controlled, or (2) intricate plumbing and piping arrangements or where entry to all portions of the premises is not readily accessible for inspection purposes, making it impractical or impossible to ascertain whether or not hazardous cross-connections exist, BJWSA's water system shall be protected against backflow from the premises by installing and approved backflow prevention assembly in the service line.
5. The type of protective assembly required shall depend upon the degree of the hazard that exists as follows:
  - a. In the case of any premises where there is an auxiliary water supply, BJWSA's water system shall be protected by an approved air-gap separation.
  - b. In the case of any premises where there is any material hazardous to health that is handled in such fashion as to create an actual or potential hazard to BJWSA's water system, BJWSA's water system shall be protected by an approved air-gap separation or an approved reduced-pressure principle backflow prevention assembly. Examples of premises where these conditions will exist include sewage treatment plants, sewage pumping stations,

- chemical manufacturing plants, hospitals, mortuaries, and plating plants.
- c. In the case of any premises where there is water or a substance that would be objectionable but not hazardous to health (Commercial Lawn Irrigation) if introduced into BJWSA's water system, BJWSA's water system shall be protected by an approved double-check valve assembly.
  - d. In the case of residential irrigation system with no chemical addition a residential dual check will be installed as part of the meter set.
6. Any backflow prevention assembly required herein shall be a model and size approved by SCDHEC.
  7. It shall be the duty of the customer/user at the premises where backflow prevention assemblies are installed to have certified inspections and operational tests made at least once a year by a certified tester. In those instances where SCDHEC or BJWSA deems the hazard to be great enough, certified inspections may be required at more frequent intervals. These inspections shall be at the expense of the water user. A copy of all reports shall be submitted to BJWSA with the original to be retained on site.
  8. Lawn Irrigation low hazard do not need yearly inspections. These devices will be the responsibility of BJWSA and will be changed out when meters are changed out or every 15 years.

## **SECTION 3 – INSPECTIONS**

### **1. Proposed Construction**

All new construction plans and specifications for commercial and industrial facilities shall be reviewed by BJWSA to determine the degree of possible cross-connections hazard. During this review, backflow prevention requirements in accordance with this policy will be determined.

### **2. New and Existing Facilities**

In order to determine the degree of hazard to BJWSA's water system, a survey will be made of the customer's presently installed water system. This survey need not be a detailed inspection of the location of disposition of the water lines, but can be confined to establishing the water uses on the premises, the existence of cross-connections, the availability of auxiliary or used water supplies and the degree of hazard that the customer's system presents. On-site inspections are made of new or existing facilities and should any assemblies or plumbing changes be required, a follow up inspection will be made of the same facilities at a later date.

### **3. Right of Entry**

Whenever it shall be necessary for the purpose of compliance or enforcement of this Policy, BJWSA's representative, may enter upon any property or premises at reasonable times for the purpose of:

- a. Inspection of any equipment or water lines,
- b. Sampling of any water suspected of any cross-connection.

### **4. BJWSA and/or SCDHEC may enter upon the property at any hour under emergency circumstances to perform any investigation required to enforce this Policy.**

## **SECTION 4 – TYPICAL CROSS-CONNECTION OCCURRENCES AND RECOMMENDED PROTECTION**

### **1. Protection recommended**

*Public potable water system.* Interconnection with an approved backflow prevention assembly shall be required on any direct interconnection (except as noted hereafter) between BJWSA's approved public water supply and another approved public potable water supply over which BJWSA does not have sanitary control. This may be accomplished in the following manner:

- a. An air gap separation or a reduced-pressure principle backflow prevention assembly is required at the service connection when the auxiliary water is or may be contaminated to a degree that would constitute a health hazard.
- b. A double check valve assembly is required at the service connection when the auxiliary water supply is being operated under a public health permit but is not acceptable to BJWSA as a source.
- c. No backflow protection at the service is recommended if the auxiliary water system as a properly conducted cross-connection control program and sanitary control program in force, and the auxiliary water supply is acceptable to BJWSA as a source.

*Private water supply.* An approved backflow prevention assembly shall be installed at the service connection to any premises in which there is any available water system other than BJWSA's potable water supply. An air gap separation or a reduced pressure principle backflow prevention assembly is required at the service connection when the auxiliary water is or may be contaminated to a degree that would constitute a hazard.

## **SECTION 6 – APPROVED BACKFLOW PREVENTION ASSEMBLIES**

The control of backflow, whether caused by backpressure or back-siphonage, requires the elimination of the cross-connection and the installation of an air gap or a backflow prevention assembly.

Currently there are several approved methods or types of assemblies that are used for the prevention of backflow, they include the following:

- a. **Air Gap (AG)** an approved air gap is the unobstructed vertical distance through free atmosphere between the lowest point of a water supply outlet and the flood level rim of the fixture or assembly into which the outlet discharges. These vertical, physical separations must be at least twice the diameter of the water supply outlet, but never less than one inch (25mm).
- b. **Reduced-Pressure Principle Backflow Prevention Assembly (RPBA)** The approved reduced-pressure principle backflow prevention assembly consists of two independently acting, approved check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and below two tightly closing resilient-seated shutoff valves, as an assembly, and are equipped with properly located resilient-seated test cocks.
- c. **Double Check Valve Assembly (DCVA)** An approved double check valve assembly consists of two internally loaded check valves, either spring-loaded or internally weighted, installed as a unit between two tightly closing resilient-seated shutoff valves as an assembly, and fittings with properly located resilient-seated test cocks.
- d. **Pressure Vacuum Breaker (PVB)** A pressure vacuum breaker assembly consists of an independently operating internally loaded check valve and an independently operating loaded air inlet valve located on the discharge side of the check valve, with properly located resilient-seated test cocks and tightly closing resilient-seated shutoff valves attached at each end of the assembly.
- e. **Atmospheric Vacuum Breaker (AVB)** The atmospheric vacuum breaker is an assembly that performs similarly to a pressure vacuum breaker. The AVB consists of a float check, a check seat, and an air inlet port. A shutoff valve immediately upstream may be an integral part of the assembly.
- f. **Residential Dual Check (RDC)** - A compact unit manufactured with two independent spring actuated check valves.



## SECTION 7 – GUIDE TO SELECTION OF ASSEMBLIES

The correct selection of a backflow assembly requires a thorough knowledge of the assembly’s operating function, the limitations of the assembly, the cause of the backflow, and the correct assessment of the degree of hazard. Because of the subjective nature in determining the proper backflow prevention assembly, this guide has been developed from past experience. However, when selecting the type of assembly, the health hazard should govern the final choice.

Description of Cross-connection	Minimum Type of Protection
Aspirators (medical)	AVB, PVB
Aspirators	AVB
Autoclaves	RPBA
Autopsy equipment	AVB, PVB
Bedpan washers	AVB, PVB
Clinics	RPBA
Commercial laundry	RPBA
Connection to sewer pipe	AG
Connection to plating tank	RPBA
Connection to salt water cooling system	RPBA
Connection to industrial fluid system	RPBA
Cooling towers with chemical additives	RPBA
Cuspidors	AVB, PVB
Degreasing equipment	DCVA
Dock and dockside facilities	RPBA
Domestic space heating boiler	RPBA
Dye vats or machines	RPBA
Flexible shower heads	AVB, PVB
Food & beverage processing plants	RPBA
Fire fighting system (toxic liquid foam)	RPBA
Heating equipment – commercial	RPBA
Heating equipment – domestic	DCVA
Hospitals	RPBA
Hose bibs	AVB
Irrigation systems with chemical additives	RPVA
Irrigation systems Commercial	DCVA, AVB, PVB
Irrigation system residential lawn	RDC
Kitchen equipment	AVB
Laboratories	RPBA
Lab bench equipment	AVB, PVB
Mortuary equipment	RPBA
Ornamental fountains	DCVA, AVB, PVB
Petroleum processing or storage facilities	RPBA
Plants using radioactive material	RPBA

Plating or chemical plants	RPBA
Pleasure boat marina	RPBA
Premises where inspection is restricted	RPBA
Reclaimed water systems	RPBA
Sewage pump	AG
Sewage treatment plants	RPBA
Sewage lift stations	RPBA
Shampoo basins	AVB
Steam generators	RPBA
Steam tables	AVB
Steam plants	RPBA
Sterilizers	RPBA
Specimen tanks	AVB, PVB
Swimming pool – public	RPBA, AVB
Swimming pool – private	PVB, AG
Tall buildings	DCVA
Tank vats or vessels containing toxic substances	RPBA
Trap primer	AG
Vending machines	RPBA, PVB
Washing equipment	AVB

## **SECTION 8 – INSTALLATIONS REQUIRING CONTINUOUS SERVICE: PARALLEL INSTALLATION**

All backflow prevention assemblies with test cocks are required to be tested once per year at a minimum. Testing requires a water shutdown usually lasting five (5) to twenty (20) minutes. For facilities that require an uninterrupted supply of water and when it is not possible to provide water service from two separate meters, provisions shall be made for a “parallel installation” of backflow prevention assemblies.

Multi-story buildings which have a number of flushometer toilets should be equipped with parallel assemblies. Experience has shown if the water supply is shut off to this type of building, flushometers may have to be manually reset.

During testing, one assembly is left on while the other is being tested. Usually, the two assemblies sizes one assembly smaller than the service line, e.g. one 2-inch assembly or two 1-1/2 –inch assemblies, one 8-inch assembly or two 6-inch assemblies.

BJWSA will not accept an unprotected bypass around a backflow prevention assembly when the assembly is in need of testing, repair, or replacement.

## **SECTION 9 – EXTERMINATING COMPANIES**

All tanks, tank truck, and spraying apparatus used to convey pesticides or herbicides in and exterminating process are required to use only overhead (air gap) piping arrangements. All filling locations will consist of overhead piping arrangements with correctly installed pressure vacuum breakers. If for any reason an overhead piping arrangement cannot be used, a reduced pressure principle backflow assembly shall be installed on the service line at the meter.

## **SECTION 10 – CROSS-CONNECTION REQUIREMENTS FOR FIRE PROTECTION SYSTEMS**

Fire protection systems consist of sprinklers, hose connections and hydrants. Sprinkler systems may be wet or dry, open or closed. Systems of fixed spray nozzles may be used indoors or outdoors for protection of flammable liquids and other hazardous processes. It is required that these systems be protected based on the following classifications:

Class 1 – Direct connections from public water mains only; no pumps, tanks or reservoirs; no physical connection from other water supplies; no antifreeze or additives of any kind; all sprinkler drains discharging to atmosphere, dry wells, or other safe outlets.

Class 2 – Same as Class 1, except that booster pumps may be installed in the connection from BJWSA's distribution system.

Class 3 – Direct connection to BJWSA's distribution system, plus one or more of the following: elevated storage tanks, fire pumps taking suction from above-ground covered reservoirs or tanks and pressure tanks. All storage facilities shall be filled from the potable water supply and maintained in a potable condition.

Class 4 – Directly supplies from public mains similar to Classes 1 and 2, and with an auxiliary water supply dedicated to fire department use and available to the premises, such as an auxiliary supply located within approximately 1,700 feet of the pumper connection.

Class 5 – Directly supplies from public mains, and inter-connected with auxiliary supplies, such as: pumps taking suction from reservoirs exposed to contamination, or rivers and ponds; driven wells; mills or other industrial water system; or where antifreeze or other additives are used.

Class 6 – Combined industrial and fire protection system supplies from BJWSA's distribution system only, with or without gravity storage or pump suction tanks.

### **Protection required**

Class 1 & 2	Double Detector Check Valve
Class 3	Double Detector Check Valve
Class 4 & 5	AG or RPBA and Detector Check Valve
Class 6	Determined by inspection of system

## 1. Fire protection guidelines for the service area

Prior to any connection of new or renovated fire sprinkler systems to BJWSA's water distribution system, the following procedures are required:

- a. Two sets of plans and hydraulic design data must be submitted for review to BJWSA's Engineering Department. All plans must be prepared by a professional engineer and plans must be signed and embossed with the engineer's seal.
- b. The plans will be reviewed and one set returned with any required changes noted on the plans. One set of plans will be retained on file.
- c. Any booster pump installations will be designed to insure that pressure in the distribution system does not fall below 20 psi residual. A minimum of 20 psi residual must be maintained in the distribution system at all times.
- d. No anti-freeze or similar chemicals will be allowed in Fire Sprinkler Systems unless approved by BJWSA.

## 2. Backflow Prevention Requirements

All new, renovated or existing Fire Sprinkler Systems will be required to have an approved double detector check valve with an approved by-pass meter. The by-pass line is also required to have a line size single check valve. The double detector check valve must meet all requirements of AWWA Standard C-506-79 or latest amendment.

## 3. Installation of Devices

Installation of the double detector check valve and by-pass meter are the owner's responsibility. The double detector check valve and by-pass meter will in all cases be installed so that they are readily accessible for maintenance and inspection. Applications for the backflow assembly and fire meters must be made by a licensed fire suppression contractor or licensed plumber.

## 4. Maintenance Requirements

It will be the responsibility of the owner to maintain the Fire Sprinkler System from the valve at BJWSA's water distribution system to the inside of the building including the backflow assembly.

## **SECTION 11 – NON-COMPLIANCE/ENFORCEMENT PROCEDURES**

### **1. Enforcement Procedure**

Non-compliance and enforcement procedures will fall into three categories:

- a. Existing water customers who do not have a cross-connection control device in their system at present, but will be required to install such a device under this policy. Customers in this category where contaminants on their property have been determined by BJWSA to represent a health hazard to the public water system will be required to take immediate corrective action upon notification. Customers will be required to install an approved backflow prevention assembly within thirty (30) days of notification when BJWSA has determined that a potential system hazard exists or with sixty (60) days for a potential pollution hazard condition.
- b. Any new water customer after the effective date of this Cross-connection Control Policy, will be required to install an approved backflow prevention device prior to connection to BJWSA's distribution system whenever BJWSA has determined that contaminants or pollution on the customer's property represents a hazard to the public water system.
- c. Those existing water customers who have required backflow prevention devices in their system which do not meet BJWSA's standards or have been found to be malfunctioning. These customers will be required to replace backflow prevention devices with assemblies that do meet BJWSA standards. Malfunctioning backflow prevention devices for low hazard conditions must be repaired or replaced by the customers with an approved backflow prevention device with thirty (30) days after notification by BJWSA. For high hazard sources, the malfunctioning backflow prevention device must be replaced or repaired immediately.

### **2. Termination of water service/Reconnect fees**

- a. Service of water to any premises will be discontinued by BJWSA if a backflow prevention assembly is required by law, rules, or regulations is not installed, tested, and maintained; or if it is found that a backflow prevention device has been removed or by-passed or if unprotected cross-connection exists on the premises and there is inadequate backflow protection at the service connections. Water service will not be restored until such conditions and defects are corrected.



- b. Water services will be terminated for water customers who do not comply with BJWSA's Cross-connection Control Policy. A written notice shall be served to the offending party that water service will be terminated within ten (10) days if the requirements of this policy are not met.
- c. The water customer shall notify BJWSA's Field Operations Manager in writing within ten (10) days to appeal termination action. The Field Operations Manager shall convene a hearing with ten (10) days of the receipt of the written notice (unless a later date is mutually agreed to) to hear the appeal of the water customer. Failure to appear will result in the termination of water service.

### 3. Legal Action

After the evidence has been reviewed and a decision rendered with a copy to the customer, BJWSA may terminate water service and/or pursue any available legal remedy.

## **SECTION 12 – INSTALLATION REQUIREMENTS**

### **1. Installation within the building establishment**

Under special conditions, only backflow prevention assemblies will be allowed within the building establishments. These conditions include:

- a. No connection between the tap at BJWSA's water distribution system to the backflow prevention device.
- b. Backflow assembly will not be installed in an area where discharge can cause damage. A small, occasional discharge for the vent is normal. Heavy discharge may occur if the device malfunctions. An approved drain must be installed to collect any water discharged from the backflow assembly.
- c. Any approved drain must have free air space between the vent port and the drain conduit (air gap).
- d. Backflow prevention assembly must be installed in an area which is readily accessible for testing and maintenance. Installation in any confined area which is not conducive to normal maintenance activities is prohibited.