



CROSS-CONNECTION CONTROL PROGRAM

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CROSS-CONNECTION CONTROL PROGRAM

I. PURPOSE

Cross-connections between a potable water system and non-potable sources of contamination represent a threat to public health. This program is designed to maintain the safety and potability of the water in the supply and distribution system by preventing the introduction by backflow of any foreign liquids, gases, or other substances into the supply system.

State: Florida Administrative Code (FAC) Rules 62-550.720(3) and 62-555.360, the American Water Works Association (AWWA) Manual M14, *Recommended Practice for Backflow Prevention and Cross Connection Control*. *The Florida Building Code P2902.5.3. Lawn irrigation systems*

II. RESPONSIBILITIES

Under the SDWA (Safe Drinking Water Act), public water systems are only responsible for the maintenance of the water system and the quality of the water delivered to the customer at the property line or meter. The PWS is not responsible for contaminants added to the water by circumstances under the control of the customer.

Owner / Consumer

The customer is responsible for ensuring the integrity of the system piping and water located downstream of the property line excluding the meter. It is the responsibility of the owner / consumer to avoid cross-connections on their property and/or to install appropriate backflow devices as well as to maintain, repair, test, and provide information to the Utility.

Utility Owner

It is the responsibility of the Utility to disconnect service upon failure of the property owner to comply with the requirements of the Utility's cross-connection control program.

III. LEGAL AUTHORITY - *This program derives its enforceability from:*

A. National: Safe Drinking Water Act of 1974 – latest revision 1996

B. State: Department of Environmental Protection - 62-555.360, Cross-Connection Control for Public Water Systems

1. *Sunshine Water Services. Rules for the Control of Backflow and Cross Connections: Water System*

- 1.1 The water system shall be considered as made up of two parts: the utility system and the customer system.
- 1.2 The utility 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 the utility, up to the point where the customer's system begins.
- 1.3 The source shall include all components of the facilities utilized in the production, treatment, storage, and delivery of water to the distribution system.
- 1.4 The distribution system shall include the network of conduits used for the delivery of water from the source to the customer's system.
- 1.5 The customer's system shall include those parts of the facilities beyond the termination of the utility distribution system that are utilized in conveying utility delivered domestic water to points of use.

2. Policy

- 2.1 No water service connection to any premises shall be installed or maintained by the water purveyor unless the water supply is protected in conformance with state laws and regulations and this Cross-Connection Control Program. Water service provided to any premises shall be discontinued by the Utility if a backflow-prevention assembly required by this Cross-Connection Control Program is not installed, tested, and maintained, or if it is found that a backflow-prevention assembly has been removed, bypassed, or if an unprotected cross-connection exists on the premises. Service will not be restored until such conditions or defects are corrected.
- 2.2 The customer's system should be open for inspection at all reasonable times to authorized representatives of the Utility to determine whether cross-connections or other structural or sanitary hazards, including violations of these regulations, exist. When such a condition becomes known, the Utility 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 and local statutes, regulations or building codes relating to plumbing and water supplies and the regulations adopted pursuant thereto. The customer will be responsible for installation of an approved backflow - assembly (reduced-pressure (RP) assemblies, pressure vacuum breaker (PVB) assemblies, and double check valve assemblies (DCVA)). Devices (residential dual check devices) that are required on service lines will be the responsibility of the Utility.
- 2.3 Backflow protection shall be installed at service connections to the type of facility/customer's water system as identified in Part V of this document. The location and appropriate size/type will be determined solely by the Utility. **In all cases, the backflow-prevention assembly or device will be installed before the first branch line leading off the service line wherever the following conditions exist:**
 - a. In the case of premises having an auxiliary water supply that is not or may not be of safe bacteriological or chemical quality and that is not acceptable as an additional source by a.

the Florida Department of Environmental Protection, the public water system shall be protected against backflow from the premises by having an approved backflow-prevention assembly or device installed in the service line, appropriate to the degree of hazard.

- b. In the case of premises on which any industrial fluids or any other objectionable substances are handled in such a fashion as to create an actual or potential hazard to the public water system, the public system shall be protected against backflow from the premises by having an approved backflow-prevention assembly installed in the service line, appropriate to the degree of hazard. This shall include the handling of process waters and waters originating from the utility system that have been subject to deterioration in quality.
- c. 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 impracticable or impossible to ascertain whether or not dangerous cross-connections exist, the public water system shall be protected against backflow from the premises by having an approved backflow-prevention assembly installed in the service line.

2.4 The type of protective assembly or device required under Section 2.3 above shall be as identified in Part V of this document and shall depend upon the degree of hazard that exists as follows:

- a. In the case of any premises where there is an auxiliary water supply as stated in subsection 2.3a of this section, the public water system shall be protected by an approved backflow assembly or device per the list identified in Part V of this document.
- b. In the case of any premises where there is water or a substance that would be objectionable but not hazardous to health if introduced into the public water system, the public water system shall be protected by an approved double check valve assembly.
- c. In the case of any premises where there is any material on site that is deemed by the Utility to be dangerous to health and that is handled, stored or used in such a fashion as to create an actual or potential hazard to the public water system, the public 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.
- d. In the case of any premises where there are “uncontrolled” cross-connections, either actual or potential, the public water system shall be protected by an approved air-gap separation or an approved reduced-pressure principle backflow-prevention assembly at the service connection.
- e. In the case of any premises where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to complete a cross-connection risk assessment, the public water system shall be protected against backflow from the premises by either an approved air-gap separation or by an approved reduced-pressure

principle backflow-prevention assembly installed on each service connection to the premises.

- f. In the case of any premises where, in the opinion of the Utility, an undue health threat is posed because of the presence of extremely toxic substances, the Utility may require the establishment of an air gap at the service connection to protect the public water system. This requirement will be at the discretion of the Utility and is dependent on the degree of hazard.
- 2.5 Any backflow-prevention assembly required herein shall conform with the approved Cross Connection Control Plan. The term *approved backflow-prevention assembly* shall mean an assembly that has been manufactured in full conformance with the following standards: 1020 & ASSE 1048 as referenced in Section VI.B.13 of this document ANSI/AWWA C510-07 – *Standard for Double Check Valve Backflow-Prevention Assembly*, and AWWA C511-07 – *Standard for Reduced-Pressure Principle Backflow Prevention Assembly*, and have met completely the laboratory and field performance specifications of the Foundation for Cross-Connection Control and Hydraulic Research (FCCCHR) of the University of Southern California established by “Specification of Backflow-Prevention Assemblies” – Sec. 10 of the most current issue of the *Manual of Cross-Connection Control*. Said AWWA, ASSE and FCCCHR standards and specifications have been adopted by the Cross-Connection Program. Final approval shall be evidenced by a “Certificate of Approval” issued by an approved testing laboratory certifying full compliance with said AWWA or ASSE standards and FCCCHR specifications. The following testing laboratory has been qualified by the Utility to test and certify backflow preventers: Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California, University Park, Los Angeles, CA 90089. Testing laboratories, other than the laboratory listed above, will be added to an approved list as they are qualified by the Utility. Backflow-preventers that may be subjected to backpressure or back siphonage that have been fully tested and have been granted a certificate of approval by said qualified laboratory and are listed on the laboratory’s current list of approved backflow-prevention assemblies may be used without further testing or qualification.
 - 2.6 It shall be the duty of the customer or user at any premises where backflow-prevention assemblies are installed to have certified inspections and operational tests made at least once per year or biennial (every two years) for residential service connections as specified in Section VI.C.2 and VI.C.10 of this document. In those instances where the Utility deems the hazard to be great enough, certified inspections may be required at more frequent intervals. These inspections and tests shall be at the expense of the water user and shall be performed by the assembly manufacturer’s representative, utility personnel, or by a certified tester approved by the Utility. It will be the responsibility of the Utility to maintain residential dual check devices where required on service lines. It shall be the duty of the Utility to document and verify that these tests are made in a timely manner.

The customer or user shall be notified by the Utility in advance when tests are due. These assemblies shall be repaired, overhauled, or replaced at the expense of the customer or user whenever said assemblies are found to be defective. Per Section VI.C.3 and VI.C.7 of this document, backflow assemblies shall be tested immediately upon installation or repair. Records of such tests, repairs, and maintenance activities shall be retained by the

customer or user and made available to the Utility in a timely manner, but in no event, longer than 10 days following such activity.

- 2.7 All presently installed backflow-prevention assemblies that do not meet the requirements of this section but were approved assemblies for the purpose described herein at the time of installation and that have been properly maintained shall, except for the inspection and maintenance requirements under subsection 2.6, be excluded from the requirements of these rules so long as the Utility is assured that the customer or user will satisfactorily protect the Utility's system. Whenever the existing assembly is moved from its present location, requires more than minimum maintenance, or when the Utility finds that the maintenance or repair constitutes a hazard to health, the unit shall be replaced by an approved backflow-prevention assembly meeting the requirements of this section.

IV. DEFINITIONS

A. *BACKFLOW*

The flow of water or other foreign liquids, gases, or other substances into the distribution system of a public water supply from any source other than the intended.

B. *BACKFLOW PREVENTION ASSEMBLY OR DEVICE*

An assembly or device to prevent backflow. A backflow prevention assembly has test ports and shut off valves to allow for inline testing and repair.

1. Air Gap (AG)

A physical separation sufficient to prevent backflow between the free-flowing discharge end of the potable water system and any other system.

2. Double Check Valve Assembly (DCVA)

An assembly having two weighted or spring-loaded bronze check valves faced with soft rubber discs and, with integral shut-off valves and test cocks in place for periodic testing purposes.

3. Hose Bibb Vacuum Breaker Device (HBVB)

A device which is permanently attached to a hose bib, and which acts as an atmospheric vacuum breaker.

4. Pressure Vacuum Breaker (PVB)

An assembly containing a spring-loaded check valve and a spring-loaded atmospheric vent which opens when pressure approaches atmospheric. It contains valves and fittings that allow the assembly to be tested.

5. Reduced Pressure Backflow Prevention Assembly (RP)

An assembly of check valves and a reduced pressure zone which spills water to the atmosphere in event of the failure of either check valve. It contains integral valves and fittings that allow the assembly to be tested.

6. Dual Check Device (DuC)

A device containing two spring loaded checks that close in an increased backpressure condition. If the second or downstream check is not working, the first check valve acts to stop the backpressure from going through the device.

C. BACK SIPHONAGE

Backflow resulting from negative or less than atmospheric pressure in the water system.

D. BACK-PRESSURE

A condition in which the customer's or user's system pressure is greater than the Utility's system pressure.

F. CONTAINMENT

A method of backflow prevention which requires a backflow prevention device at the water service entrance.

G. CROSS-CONNECTION

Any connection or structural arrangement between a public or consumer's potable water system and any non-potable source or system through which backflow can occur.

H. PWS

Public Water System owned and operated by the Utility.

I. UTILITY

Owner and operator of the water supply and distribution system.

J. FIXTURE ISOLATION

A method of backflow prevention in which a backflow prevention device is located to address a cross-connection at a location internal to the premises served rather than at the water meter or water service entrance.

K. OWNER

Any person who has legal title to, or license to operate or inhabit in, a property upon which a cross-connection inspection is to be made or upon which a cross-connection is present.

L. WATER SERVICE ENTRANCE

That point in the owner's water system beyond the sanitary control of the supplier. This will usually be at the property line excluding the meter and will always be before any unprotected branch.

V. DEGREE OF HAZARD AND TYPES OF APPROVED ASSEMBLIES OR DEVICES

The Utility recognizes that varying degrees of hazard are caused by different cross-connections. The assemblies or devices which are permitted for use in each class of hazard and a description of the classes are as follows: A list of manufactured approved assemblies or devices is available from the Utility.

A. LOW DEGREE OF HAZARD (*non-health*)

If backflow were to occur, the resulting health significance would be limited to minor changes in the aesthetic quality of water such as taste, odor, or color. The foreign substance must be non-toxic and non-bacterial in nature with no significant health effects. The allowed assemblies or devices are Pressure Vacuum Breaker (PVB) assembly, double check valve assembly (DCVA), reduced pressure assembly (RP), and air gap. The PVB is suitable for use for irrigation system's ONLY and where only back siphonage backflow can occur but are **not suitable** for use where backpressure backflow can occur.

B. HIGH DEGREE OF HAZARD (*health*)

If backflow were to occur the resulting effect on the water supply could cause illness or death if consumed by humans. The allowed assemblies or devices are air gap (AG) and reduced pressure principle assembly (RPBA).

FACILITIES WHERE BACKFLOW PREVENTION WILL BE REQUIRED AT THE UTILITY'S WATER METER OR AT THE WATER SERVICE ENTRANCE

The table below lists the various types of facilities and the minimum type of backflow protection that will be required by the utility. This table may not be all inclusive and for any type of facility not listed therein, the utility shall determine the appropriate type of device to be installed.

"DCVA" indicates an approved double check valve assembly. "RP" indicates an approved reduced pressure backflow prevention assembly. "PVB" indicates an approved pressure

vacuum breaker assembly. DuC indicates an approved dual check device. NOTE: In all cases an approved physical air gap (AG) may take the place of a backflow prevention assembly.

MINIMUM TYPE OF BACKFLOW PROTECTION REQUIRED

TYPE OF FACILITY	Hazard Level	Backflow Device Required
Automotive Repair	High	Reduced Pressure (RP)
Beverage Bottling Plant or Brewery	High	Reduced Pressure (RP)
Beverage Bottling Plant or Brewery	Low	Double Check Valve Assembly (DCVA)
Cannery, Packing House, or Reduction Plant	High	Reduced Pressure (RP)
Car Wash Facilities	High	Reduced Pressure (RP)
Clinics	High	Reduced Pressure (RP)
Chemical Plant or Facility using water in the Manufacturing, Processing, Compounding, or Treatment of Chemicals, including any Facility where a Chemical that does not Meet the Requirements in Paragraph 62-555.320(3)(a), F.A.C., Is Used as an Additive to the Water	High	Reduced Pressure (RP)
Dairy, Creamery, Ice Cream Plant, Cold-Storage Plant, or Ice Manufacturing Plant	High	Reduced Pressure (RP)
Dedicated Irrigation Service Connection	High	1. Reduced Pressure (RP) 2. Pressure Vacuum Breaker (PVB) <i>(If no back pressure could develop in downstream piping, see paragraph VI. B14)</i>
Dentist Office	High	Reduced Pressure (RP)
Dry Cleaning Facilities	High	Reduced Pressure (RP)
Film Processing Facilities	High	Reduced Pressure (RP)
Fire Systems - Chemical additives (Not connected to an auxiliary water supply)	High	Reduced Pressure (RP)
Fire Systems - Chemical additives, (Connected to an auxiliary water supply)	Low	Double Check Valve Assembly (DCVA)
Fire Systems - No chemical additives, (Not connected to an auxiliary water supply)	Low	Double Check Valve Assembly (DCVA)
Laboratories	High	Reduced Pressure (RP)
Laundries and Dye Works	High	Reduced Pressure (RP)
Manufacturing Facilities	High	Reduced Pressure (RP)
Manufacturing Facilities	Low	Double Check Valve Assembly (DCVA)
Marine Repair Facility, Marine Cargo Handling Facility, or Boat Moorage	High	Reduced Pressure (RP)
Medical Building	High	Reduced Pressure (RP)
Metal Manufacturing Cleaning, Processing, or Fabricating Facility	High	Reduced Pressure (RP) or Air Gap (AG)
Morgues or Mortuaries	High	Reduced Pressure (RP)

Multi-Story Buildings, 4 Floors or Higher	High	Reduced Pressure (RP)
Multi-Story Buildings, up to 4 Floors (Excluding single family premise)	Low	Double Check Vacuum Breaker (DCVA)
Multiple Services - Interconnected	High	Reduced Pressure (RP)
Multiple Services - Interconnected	Low	Double Check Valve Assembly (DCVA)
Oil or Gas Production, Development, Processing, Blending, Storage, Refining, or Transmission, Property or Premises where Oil or Gas Tanks are repaired or tested. Excluded are Premises that are fuel dispensing facilities only	High	Reduced Pressure (RP)
Paper or Paper-Product Plant	High	Reduced Pressure (RP)
Plating Plant or Facility	High	Reduced Pressure (RP)
Premises Where There Is a Cooling Tower	High	Reduced Pressure (RP)
Premises Where There Is a Steam Boiler Plant	High	Reduced Pressure (RP)
Radioactive Material Processing or Handling Facility	High	Reduced Pressure (RP)
Photo Processing Facilities	High	Reduced Pressure (RP)
Premises having an Auxiliary Water Supply	High	Reduced Pressure (RP)
Premises with Internally connected Irrigation	High	1. Reduced Pressure (RP) 2. Pressure Vacuum Breaker (PVB) (If no back pressure could develop in downstream piping, see paragraph VI. B14)
Premises where Inspections are Restricted	High	Reduced Pressure (RP)
Reclaimed water stored with surface water from a Storm water management system	High	Reduced Pressure (RP)
Reclaimed water regulated or unregulated under Part III, Chap. 62-610	High	Reduced Pressure (RP)
Restaurants	High	Reduced Pressure (RP) or Air Gap (AG)
Schools and Colleges	High	Reduced Pressure (RP)
Sewage and/or Stormwater Collection and Pumping Facilities	High	Reduced Pressure (RP)
Solar Heating Systems	High	Reduced Pressure (RP)
Surface water stored in a Storm water management system	High	Reduced Pressure (RP)
Temporary or Permanent Service Connection from a Fire Hydrant	High	Reduced Pressure (RP)
Temporary or Permanent Service Connection from Fire Hydrant	Low	Double Check Vacuum Breaker (DCVA)
Veterinary Establishments	High	Reduced Pressure (RP)
Warehouse and Storage Facilities	High	Reduced Pressure (RP)
Warehouse and Storage Facilities	Low	Double Check Valve Assembly (DCVA)

Wastewater and Reuse Facilities	High	Reduced Pressure (RP)
Well Water	High	Reduced Pressure (RP)
Premises having a Reclaimed Water Supply	Low	Dual Check (DuC)

In addition, all fire service lines shall have an approved reduced pressure backflow prevention assembly or double detector check valve assembly (depending on the degree of hazard) installed in line and above ground just prior to the connection point with the Utility's potable water system.

VI. ADMINISTRATION

A. PROGRAM

1. The Utility will keep summaries of all questionnaires/reports, backflow preventer test reports, inventory of required backflow preventers, and reports of installation and repair of backflow protection on service lines.
2. Records shall be kept by the Utility for ten years. (62-550.720 (3))
3. Educational brochures will be included with all customer surveys that will be mailed to customers.

B. INSPECTION

1. Inspections are made during normal working hours unless otherwise arranged with the owner.
2. Property owners may be required to complete survey questionnaires provided by the Utility as frequently as every two years or as necessary to insure the protection of the Utility's potable water system. The questionnaires shall be completed and returned to the Utility within 14 calendar days. The Utility will review the questionnaires and determine the level of hazard associated with the provision of water service to the premises, the presence of cross-connections, the appropriate backflow prevention assembly or device required, and if further inspection is needed. See Appendix B.
3. The owner shall allow his property to be inspected for possible cross-connections and for the testing of backflow prevention assemblies. Utility personnel trained to recognize cross-connections may perform the inspections. As a result of the submitted inspection reports and questionnaires, the Utility will classify the hazard and will provide a list of appropriate assemblies or devices.
4. When applying for a new service the owner shall state the nature of the establishment to be served and inform the Utility if there are any possible cross-connections existing or proposed. Prior to activation of all new water services and new construction including residential services, compliance with this program and with rules and regulations promulgated by the state of Florida Department of Environmental Protection shall be mandatory.

5. Whenever existing systems are modified; the Utility shall be informed by the owner. The Utility shall be immediately informed of any malfunctioning backflow assemblies or devices.
6. After inspection of plans or premises the Utility shall inform the owner by written notice of any cross-connections or malfunctioning assemblies or devices, suggest ways of correcting the problem and will establish a time limit for the correction to be made. (See Section F. Compliance)
7. If the Utility determines at any time that an immediate threat to the public health exists, the Utility reserves the right to terminate potable water service immediately.
8. Frequency
 - a. Industrial – shall be inspected at least every two years or as needed.
 - b. Commercial – shall be inspected at least every two years or as needed.
 - c. Dwellings with more than four units – shall be inspected every two years or as needed.
 - d. Dwellings with four or fewer units – shall be inspected as needed.
 - e. Dedicated irrigation – shall be inspected at least every two years or as needed.
 - f. Residential connections – shall be inspected as necessary.
9. Owners of dwellings with four or fewer apartments shall be encouraged to install backflow prevention devices on hose bibbs and shall be warned of possible hazards. If a cross-connection is present the owner will be required to install a backflow prevention assembly or device appropriate for the hazard at the water service entrance.
10. The Utility reserves the right to inspect all cross-connections. The owner shall comply with any required changes as a result of the inspections.
11. When new building construction permits are issued by the permitting agency, plans shall be reviewed from a cross-connection control perspective and address cross connection protection. This will avoid potential conflicts when application is made for water service.

Procedures shall include a follow-up site inspection when the construction is completed. The backflow-prevention assembly shall be inspected to ensure that it has been properly installed and is functioning as designed.

Fire protection systems must also be inspected to protect against potential or actual cross-connection hazards.

For multi-use developments where the type of hazard is unknown or cannot be determine, the designer of the plumbing systems must install a Reduced Pressure backflow preventer (RP). Care should be taken in sizing to ensure that it does not reduce fire protection ratings or reduce domestic water main pressures below the minimum needed. Typically, the size of the RPBA should match the size of the water main.

For domestic water, backflow preventers must be the approved type per Sections VI.B.13 and VI.B.14 of this document.

For fire protection systems, Double Check Valve Assemblies (DCVAs) must meet AWWA Standard C510 and Reduced Pressure Backflow Preventers (RP) must meet AWWA Standard C511.

- 12. Customer premises will be reassessed whenever application is made for a change in the that service is provided to the customer or if the type of water use has changed within the premises.
- 13. New customer-owned backflow preventers at water service entrances to potable water systems must conform to the following standards referenced in the Florida Building Code:

RPBA	AWWA C511
DCVA	AWWA C510
PVB	ASSE 1020
Residential DuC	ASSE 1048

- 14. Water service entrances which have dedicated irrigation service lines are considered a high health hazard and backflow preventers utilized must conform to the Utility- approved assemblies or devices for such a hazard which is an RPBA conforming to AWWA C511, a PVB conforming to ASSE 1020, or an air gap separation. *A PVB can be used only if there is no means for backpressure to occur.*

For irrigation systems connected internally to a private plumbing system, the appropriate internal protection is an RPBA or a PVB if no chemicals are introduced into the irrigation systems, per *Florida Building Code P2902.5.3*. If internal protection is not provided or is not being tested and maintained, the Utility will require an RPBA be installed at the water service entrance which must conform to AWWA Standard C511.

- 15. A Dual Check or non-tested DCVA as described in Section VI.C.12 may be provided at residential water service entrances (i.e., water service entrances that are two inches or less in diameter and that supply water to a building, or premises, containing only dwelling units) to premises served by auxiliary or reclaimed water only if there is no known cross-connection between the plumbing system and the auxiliary or reclaimed water system on the customer’s premises.
- 16. If an Air Gap is used or required, it shall be inspected at least annually by a certified backflow assembly tester approved by the Utility.
- 17. Prior to activation of any new reclaimed water service, compliance with the cross-connection control program is required.

C. TESTING

- 1. The testing, inspection, and maintenance of approved assemblies and devices shall be the responsibility of the customer with exception of dual check devices which will be the responsibility of the Utility.

2. All commercial and dedicated irrigation testable assemblies are required to be properly maintained and tested annually by a certified backflow assembly tester approved by the Utility.
3. All residential service connections (with exception of dedicated irrigation) testable assemblies are required to be properly maintained and tested biennial (every two years) by a certified backflow assembly tester approved by the Utility.
4. All newly installed assemblies must be tested upon installation and prior to official operation.
5. The customer must use the test form issued by the Utility or a test form approved by test form approved by the Utility. *See Appendix B.*
6. If an assembly fails a test, the Utility must be notified immediately.
7. Malfunctioning assemblies or devices must be repaired immediately. If removal is necessary, service must be shut down until the unit is repaired or replaced.
8. The assembly is to be retested immediately after completing any type of maintenance activity including repairs, overhauls, re-piping, or relocation of the assembly.
9. The Utility may notify the customer on an annual basis when testing of an assembly is required. The notification will include an official Utility test form and an explanation of responsibilities and requirements regarding completion of the test. The customer must then return the completed Utility test form by the due date provided on the notification. *See Appendix C.*
10. At a minimum, backflow prevention assembly testers should complete a 32-hour course, certification exam, and periodic re-certification exam acceptable to the Utility. Courses and exams currently accepted by the utility are provided by the University of Florida's TREEO Center & the Florida Water & Pollution Control Operators Association (FWPCOA).
11. Customer-owned RPBA's, DCVA's, and PVB's at water service entrances to potable water systems must be tested in accordance with one of the applicable standards referenced in the Florida Building Code, (ASSE) Series 5000, or (CSA) B64.10.1-01. RPBA's and DCVA's utilized on fire protection systems must also be tested in accordance with one of the above referenced standards. Per Statute Sections 633.021 and 633.541, only certified fire-protection contractors may test backflow preventers at water service entrances to fire-protection systems. RPBA's and PVB's utilized at water service entrances to dedicated irrigation service lines must also be tested in accordance with one of the above referenced standards.
12. Field testing equipment should be checked for accuracy at least annually and conform to all applicable standards and procedures based on manufacturer specifications.
13. Non-testable residential dual checks (DuC) or testable DCVA's can be used at residential water service entrances (i.e., water service entrances that are two inches or less in diameter and that supply water to a building, or premises, containing only dwelling units) to

premises served by auxiliary or reclaimed water systems but must be overhauled or replaced at least once every ten years. Educational mailings will be distributed to the customer when a residential dual check or DCVA is initially installed at a water service entrance served by auxiliary or reclaimed water and when application is made for a change in the customer of record at this type of premises. The Utility will inspect the customer's potable water system and reclaimed water system when a residential dual check or DCVA is initially installed or when application is made for a change in the customer of record at premises served by reclaimed water. Non-residential services to premises served by reclaimed water will require a RPBA per AWWA Manual M14.

D. INSTALLATION

1. After being informed by written notice from the Utility, the customer at his or her sole expense, shall install a backflow prevention assembly or device listed and approved by the Utility.
2. The manner of installation shall be according to manufacturer's specifications and approved by the Utility.
3. Pit installations must have Utility approval prior to installation. RPBA's and PVB's may not be installed in below ground pits. DCVA's or residential dual check installed in a below ground pit must have plugged test cocks and must be installed in a pit with drainage sufficient to maintain a normally dry pit during and following wet weather.
4. The Utility requires the water supply to be protected by containment for commercial services, dedicated irrigation services and alternative water supply, the customer shall install the backflow prevention assembly or device as close as possible to the outlet of the meter or the service entrance and shall be responsible for the water quality downstream of the outlet end of the assembly or device. Without exception, no connections shall be allowed between the service entrance at the customer's property line and the backflow assembly or device inlet.
5. The Utility requires the water supply to be protected by isolation for internally connected irrigation services, the customer shall install the backflow prevention assembly or device on the irrigation line leading off the service line and before the first branch of the irrigation system.
6. The Utility prohibits any interconnections by the customer or consumer within the owner's plumbing system that would create a prohibited or inadequately protected, real or potential cross-connection with the public water system and thereby create a public health hazard.
7. Installation of assemblies or devices should allow for peak demand and fire flows. The customer must be aware that installation of a residential dual check valve results in a potential closed plumbing system within his residence. As such, provisions may have to be made by the customer to provide for thermal expansion within his closed loop system, i.e., the installation of thermal expansion devices and/or pressure relief valves. A registered professional engineer or certified fire-protection contractor should check the hydraulics of existing fire protection systems to determine the applicability of such devices.

8. If the assembly or device will be subject to hot water, a backflow prevention assembly or device that can withstand the maximum temperatures expected must be installed. Please note that some manufactured assemblies or devices will accept greater temperatures than others.
9. In situations where the water supply cannot be interrupted to allow for testing or repair of the backflow prevention assembly or device, the owner must supply an additional assembly or device appropriate to the degree of hazard. A bypass is not allowed around any backflow prevention assembly or device unless a backflow prevention assembly or device is installed on the bypass piping of the same type.

E. EXEMPTIONS

Any existing backflow prevention assembly or device in service at the time this program goes into effect shall be allowed to continue in service if proof of latest inspection has been conducted within the last 12 months and until:

1. The Utility considers the condition of any portion of the assembly or device to be such that replacement shall utilize a backflow prevention assembly or device of the appropriate classification.
2. The assembly or device protecting the cross-connection is inadequate for the degree of hazard.
3. The assembly fails when tested.
4. The assembly or device malfunctions and requires repairs.

F. COMPLIANCE

1. All cross connections that are deemed to be a high hazard shall be immediately eliminated or protected by a proper backflow assembly or device. The Utility reserves the right to terminate service if the cross connection cannot be eliminated or protected.
2. All cross connections that are deemed to be a low hazard shall be eliminated or protected by a proper backflow assembly or device within 90 days of discovery.
 - a. First notice shall be the letter of inspection requirement.
 - b. Second notice will be a reminder informing the customer in writing of failure to comply with the first notice. If customer cannot comply with original deadline, the customer may submit a request for an extension to be considered by the Utility.
 - c. Final notice shall be a written notice of service termination to take place within **fifteen days by certified letter**.

3. Failure to comply with these regulations either by an inability or unwillingness to complete the application, procure and install the proper assembly or device, or repair a malfunctioning assembly or device, may lead to termination of service until compliance has been reestablished.
4. Reestablishment of service prior to the installation of a backflow prevention assembly or device may be allowed at the sole discretion of the Utility but only after an agreement has been reached with the customer or owner indicating the intention of the customer or owner to comply and a compliance schedule is established.
5. Should the Utility deem the connection to be immediately dangerous to the public's health, the service will be immediately disconnected and will remain disconnected until such time as the cross connection is eliminated or adequately protected by the installation of a properly selected and approved backflow assembly or device.

G. COMPLAINTS AND EMERGENCIES

1. Customer complaints can be an indication of a backflow incident and will be investigated immediately. If an investigation reveals a backflow incident, corrective actions will be taken immediately.
2. Corrective actions taken following detection of an incident include: 1) isolation; of the contaminated area; 2) public notification; 3) flushing and cleaning the system; and/or 4) pipeline replacement.

Isolation of the Contaminated Area

If preventive measures fail and a backflow contamination event occurs, the utility will respond first by trying to limit the damage and remove the contaminant from the system. When the Utility is apprised of a contamination event, it will isolate the portion of the system that was contaminated to prevent the contamination from spreading. This is achieved by shutting off valves surrounding the contaminated area. Crews generally start at the point where the contamination was first reported and continue until the contamination is isolated.

Regulatory and Public Notification

If a contamination event has occurred and the contamination was unable to be isolated before reaching customers, FDEP will be notified by the Utility to FDEP's local District Office or approved county health department as soon as possible, but no later than noon of the next business day. Additionally, per FAC Rule 62-555.350(10)(e) the utility must describe the incident in its monthly operating report. All customers served by the system must be notified. The type of notification depends on the contaminant and the size of the area contaminated. If the contaminant has acute health effects, notification must be prompt, either through broadcast media or through system employees or public safety officials going door-to-door depending on the size of the area.

For contaminants without immediate or short-term health effects, the public can be notified by other methods such as letters placed in mailboxes or local newspaper. Notification of

the public can prevent health effects by minimizing possible contact with contaminated water until other immediate corrective measures have been completed.

System Flushing and Cleaning

Once a contamination event has been detected and isolated, Utility personnel will flush the system in an attempt to remove the contaminant. Flushing is done by opening hydrants and expelling water from the system using a wide-open valve approach until the contaminant can no longer be detected. If a large area has been affected several hydrants may need to be opened in succession to clean the system. Flushing generally moves from the source of contamination in a downstream direction.

Some contaminants may not be adequately removed by flushing. Microbial contaminants may concentrate in biofilms that may not be easily dislodged by flushing alone. Other contaminants may adsorb onto biofilm layers or corroded pipe materials and be released slowly to water in the pipe and, therefore, may take a significant amount of time to flush from the system (US EPA, 1992). In these cases, water systems may opt to physically clean the pipelines. Pigging and rodding are cleaning methods used where a device is introduced into the pipe that physically scrapes biofilm and corrosion layers from the interior surfaces of the pipe. Jetting and sandblasting can also be used to remove such layers. Typically, pipes are disinfected and flushed after a physical cleaning by one of the above methods.

Pipeline Replacement

Some contaminants may not be removed by physical cleaning. Examples include pesticides that may be adsorbed onto the interior surfaces of pipe material and then released into solution. Radioactive materials are also difficult to remove physically as they can irradiate pipe materials.

Other contaminants such as highly corrosive or explosive contaminants may cause damage to the system. In these cases, the Utility may choose to replace the contaminated piping and other appurtenances.

VII. APPENDICES

APPENDIX A

APPENDIX B

APPENDIX C