

IMMOKALEE WATER & SEWER DISTRICT
CROSS CONNECTION CONTROL
PROGRAM

1.0 INTRODUCTION

1.1 General

The Immokalee Water & Sewer District operates a public water utility serving the area in and around the town of Immokalee located in north central Collier County, Florida. Under FAC 17-555.360, Permitting and Construction of Public Water Systems, all community water systems are required to...“establish a routine cross connection control program to detect and prevent cross connections that create or may create an imminent and substantial danger to public health.” This document provides the framework for meeting this regulatory requirement. The term cross connection shall mean:

1. Any unprotected actual or potential connection or structural arrangement between any part of the District’s potable water system, which is used and intended to supply water for drinking purposes, and any source or system containing water or substances that is not or cannot be approved as safe, wholesome and potable for human consumption.
2. Any unprotected actual or potential connection or structural arrangement between any part of the District’s reclaimed/IQ water system, which is used and intended to supply water for irrigation, and any source or system containing water or substances that is not or cannot be approved as safe.

1.2 Program Objectives

This program provides a basis from which to implement appropriate cross connection control requirements within the District’s system. Implementation of the program involves several key elements. These elements include inspection of existing customer services and on-site water use practices, risk assessment, establishing requirements and responsibility for cross connection control, establishing criteria for implementing cross connection control, establishing related guidelines and establishing the impact of non-compliance with cross connection control requirements.

2.0 GOVERNING CRITERIA, RULES, AND DEFINITIONS

2.1 General

This program is to be implemented under the requirements of and in accordance with the governing criteria and rules which are established by the State of Florida under FAC 62-555.360 and FAC 62-610.470. The following documents are incorporated by reference into this program:

- FAC Rule 62-555.360

- FAC Rule 62-610.470
- AWWA Manual M14, “Backflow Prevention and Cross Connection Control”, latest edition.
- USEPA Cross-Connection Control Manual, latest edition.
- Standard Plumbing Code, SBCCI/ICC, latest edition.

Definitions shall be as stipulated in the foregoing regulations and guidance documents. In the event of conflict in terms, the order of ranking in resolving differing interpretations or requirements between these documents shall be as follows:

- This program document
- FAC Rule 62-555.360
- FAC Rule 62-610.470
- AWWA Manual M14
- USEPA Cross-Connection Control Manual
- Standard Plumbing Code, SBCCI/ICC

In the case of continuing conflict, the interpretation of District Director shall be final.

2.2 Definitions

The following definitions are established and shall be used in interpreting the requirements of this program.

2.2.1 Backflow

The undesirable reversal of flow into the District’s or consumer’s potable water system as a result of a cross connection.

Backflow of substances from the customer’s water system into the District’s water system can be caused by backpressure or backsiphonage. Backpressure results when a customer’s water system is connected to the District’s system and the pressure in the customer’s water system is greater than the pressure in the District’s water system. Backsiphonage results when a negative or substantially reduced pressure is created in the District’s water system in relation of the customer’s water system.

2.2.2 Backflow Preventer – Customer-Owned

An assembly or means to prevent Backflow that is purchased, owned, and maintained by the water customer. The following defines backflow preventer systems which may be

approved for use, by customers served by the District, on a case by case basis to protect and/or isolate areas of the Customer's Water System:

2.2.2.1 Air Gap (AG)

The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet conveying water or waste to a tank, plumbing fixture, receptor, or other assembly and the flood level rim of the receptacle. These vertical, physical separations must be at least twice the diameter of the water supply outlet, never less than 1 inch.

2.2.2.2 Reduced-Pressure Backflow Prevention Assembly (RPBA)

The approved reduced-pressure 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 the first check valve. These units are located between two tightly closing resilient-seated shutoff valves as an assembly and equipment with properly located resilient-seated test cocks.

2.2.2.3 Double Check Valve Assembly (DCVA)

The 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 and fittings with properly located resilient-seated test cocks. This assembly shall only be used to protect against a non-health hazard (that is, a pollutant).

2.2.2.4 Vacuum Breaker – Atmospheric Type (AVB)

The approved atmospheric type vacuum breaker assembly consists of a float check, a check seat, and an air inlet port.

2.2.2.5 Vacuum Breaker – Pressure Type (PVB)

The approved pressure type 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.

2.2.3 Backflow Preventer – District-Owned

An assembly or means to prevent Backflow that is installed on the customer's water service line to protect either the District's Potable Water System or the District's Reclaimed/IQ Water System, which is owned and maintained by the District. The following defines backflow preventer system which are approved for use:

2.2.3.1 Reduced-Pressure Backflow Prevention Assembly (RPBA)

The approved reduced-pressure 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 the first check valve. These units are located between two tightly closing resilient-seated shutoff valves as an assembly and equipment with properly located resilient-seated test cocks.

2.3 Certified Technician-Backflow Prevention

The term certified technician shall mean a person employed by the District who is trained in the maintenance, repair and testing of backflow prevention devices. A certified technician will have successfully completed a training course, recognized by the State of Florida, specifically related to backflow prevention, backflow preventer testing and maintenance, and the rules and regulations applicable to cross connection control.

2.4 Customer's Water System

The term customer's water system shall mean water pipes and appurtenances, pumps, tanks and other facilities connected to the District's water system downstream of the District's RPBA, or in the case of Collier County-owned Facilities, downstream of the District's service connection to the customer.

2.5 Cross Connection

A connection or potential connection between any part of the Districts water system and any other environment containing other substances in an manner that, under any circumstances would allow such substances to enter the District's water system. Other substances may be gases, liquids or solids, such as chemicals, waste products, steam, water from other sources (potable or non-potable), or any matter that may change the color, add odor or change the chemical or biological composition of the water.

2.6 District's Water System

The water supply facilities, treatment facilities, storage facilities, pumping facilities, transmission mains, distribution mains, water meters, and service laterals up to the customer's side of the District's RPBA or water meter, as applicable.

2.6.1 District's Water System - Potable

This is the public potable water system which provides water of a quality that is suitable for drinking.

2.6.2 District's Water System – Reclaimed/IQ

This is the public non-potable water system which treats and conveys the effluent from the wastewater treatment plant to a quality that is suitable for irrigation, but is unsuitable for drinking.

2.7 Hazard, Degree of

The term establishes the potential risk to public health and the adverse effect of the hazard upon the District's water system.

2.7.1 Hazard – Health

A cross connection or potential cross connection involving any substance that could, if introduced in the potable water supply, cause death, illness, spread of disease, or have a high probability of causing such effects.

2.7.2 Hazard – Non-Health

A cross connection or potential cross connection involving any substance that generally would not be a health hazard but would constitute a nuisance or be aesthetically objectionable, if introduced into the potable water supply.

2.8 Pollution

The presence of any foreign substance in water that tends to degrade its quality so as to constitute a non-health hazard to impair the usefulness of the water.

2.9 Water-Potable

Water that is safe for human consumption as described by public health authority having jurisdiction.

2.10 Water – Reclaimed/IQ

Highly-treated effluent from the wastewater treatment plant that is suitable for irrigation, but is not safe for human consumption.

3.0 CROSS-CONNECTION CONTROL – SERVICE CONNECTIONS

3.1 Services

Services shall be defined as any connection to the District's water system where either potable or reclaimed/IQ water is conveyed from the District's water system to the customer's water system through a meter. The cross connection control program for customer's service locations shall be implemented in a manner and or a schedule as outlined hereinafter.

3.2 Classification of Connections

The purpose of generally classifying customer services into one of the following six groups is to establish a hierarchy based on the potential for cross connections which might present a hazard to the District system and establish a priority for site inspections. The District shall compile a list of all customer services categorizing each service into one of the following groups listed in order of hazard potential from least to greatest:

- SINGLE FAMILY RESIDENTIAL (e.g.: one single family dwelling per lot)

- MULTI-FAMILY RESIDENTIAL (e.g.: duplexes, apartments, condominiums, trailer parks)
- COUNTY FACILITIES (e.g.: courthouse, parks, public library, public facilities owned and maintained by Collier County)
- COLLIER COUNTY SCHOOL BOARD (e.g. public schools)
- LIGHT COMMERCIAL (e.g.: restaurant, laundry, commercial office, private schools, private facilities, motels, hotels, hardware stores, supply houses, car repair facilities)
- INDUSTRIAL (e.g.: dry cleaning, packing house, freezer facilities, manufacturing site, pest control, chemical or industrial supply houses)
- MULTI-STORY BUILDINGS (e.g.: any building or dwelling greater than one story that has an increased potential for backflow into the District’s system)

4.0 DISTRICT’S RESPONSILIBILTIES

4.1 Existing Services Without Cross-Connection Control Devices

The District shall install, own, operate, and maintain an RPBA backflow assembly on each residential existing service that existed prior to April 21, 2010 that did not have a cross-connection control device. RPBA’s shall be installed as close as practical after the meter in order to avoid the future possibility of by-passing the device.

4.2 Existing Services With Cross-Connection Control Devices

The District shall notify all property owners that have existing Cross-Connection Control Devices at the water meter in writing of the District’s policy established by this Resolution to own, operate, and maintain RPBA’s. The notification shall also state that the District shall inspect and test all existing cross-connection control devices which existed prior to the effective date of this Resolution to verify that they are RPBA devices in good working order.

If the RPBA is found to be in good working order, then the RPBA will become the property of the District, with the exception of facilities owned by Collier County and the Collier County School Board commercial customers who have been tested and accepted as of 01/01/2016. Collier County and the Collier County School Board will continue to own, operate, and maintain RPBA devices for its facilities. Commercial users, Collier County and the Collier County School Board will continue to be required to furnish the District with copies of certified inspection, testing, and repair reports.

If the existing cross-connection control device is found to be an RPBA in a condition which does not adequately protect the District’s system from potential hazards, the District shall notify the property owner in writing that they have thirty (30) days from the date of the letter to correct the situation at the customer’s cost and to notify the District when the necessary repairs have been made. At that time, the District will re-inspect the RPBA to verify that it is in good working

order. Once the RPBA has been found to be in good working order, then it will become the property of the District.

If the existing cross-connection control device is found to be in good working order but is not an RPBA, the District shall notify the property owner that the existing device does not meet the requirements as set forth in this Resolution and that arrangements will be made to minimize the amount of time that the water service will be shut off so that a new RPBA device can be installed by the District at the District's cost.

If the existing cross-connection device is found to be a device other than an RPBA in a condition which does not adequately protect the District's system from potential hazards, the District shall notify the property owner in writing that they have thirty (30) days from the date of the letter to install a new RPBA at the customer's cost and to notify the District when the installation has been completed. At that time, the District will inspect the RPBA to verify that it is in good working order. Once the RPBA has been found to be in good working order, then it will become the property of the District.

4.3 New Service Connections

All new connections to the District's water system shall be reviewed for compliance to the requirements of this program. The District shall, as part of their normal pre-construction plan, review process, complete an evaluation of cross connection control needs for the service. The District shall define the specific cross connection control requirements for the connection. The RPBA(s) required by the District shall be paid for and installed by the developer, but shall become the property of the District upon final acceptance of the project by the District.

The connection shall be considered as certified for service upon the District performing an inspection of the completed installation to determine that the system has been constructed in accordance with the approved construction documents.

4.4 Site Inspections

The District shall perform an annual physical inspection of each customer service location commencing on the effective date of this program. The District shall provide a continuing cross connection control inspection program through continually updating the list of customer services which have not been either inspected or certified as having appropriate cross connection control safeguards. Each customer service shall be inspected annually to determine that the customer's on-site system and processes have not been reconfigured in a manner which would alter the potential cross connection hazard of the site. The inspections shall be conducted by a certified representative of the District staff concurrently with the testing and maintenance responsibilities stipulated in Section 4.6. An inspection report shall be completed for each site. A copy of the inspection report form is contained in Appendix H of the USEPA Cross-Connection Control Manual. The completion of the inspection and report shall have several objectives including:

- Protect the District water supply from possible contamination which could be introduced through the customer's water piping system.

- Eliminating or controlling cross connections, either existing or future potential, between the customer’s on-site service piping, process piping and related facilities, and the District’s water system.

District Staff shall have the authority to enter on and inspect the Customer’s property and facilities as required to accomplish the objectives of this program.

4.5 Inspection Records

The District shall maintain a file of all locations requiring inspection and all locations inspected. This file shall be available for inspection by the appropriate regulatory agencies on an as-requested basis.

4.6 Testing and Maintenance

The District shall perform an annual physical test of each RPBA at each customer service location commencing on the effective date of this program. The tests shall be conducted by a certified representative of the District staff concurrently with the inspection responsibilities stipulated in Section 4.4. A test report shall be completed for each site, and any deficiencies found shall be corrected at the time of the test. A copy of the test and maintenance report form is contained in Appendix I of the USEPA Cross-Connection Control Manual.

4.7 Establishment of Flat Fee

The District shall establish a monthly flat fee for each size of RPBA based on recouping the District’s costs associated with the annual testing and repairs anticipated to be necessary. The monthly flat fee schedule is as follows:

¾”	\$5
1”	\$5
1 ½”	\$5
2”	\$5
2 ½”	\$5
3”	\$7
4”	\$7
6”	\$10
8”	\$10
10”	\$15
12”	\$15

5.0 CROSS CONNECTION CONTROL REQUIREMENTS

An RPBA cross-connection control device shall be required for each existing and each new service connection on the District water system in accordance with Section 4.0 of this Resolution.

In addition to the RPBA requirement at the meter, internal cross connection control could include the installation of approved cross connection control devices, periodic inspections of the customer's property, or the requirement that the customer's onsite piping be modified to protect the District's or customer's water system.

Table 1 provides a guide to the assessment of hazard and requirements for internal cross connection control which may be required for selected businesses, facilities, process, or systems.

This is a partial listing and is intended only to provide a general guide as to what the requirements will be for cross connection control. The specific requirements will be established on a case by case basis by the District based upon an inspection of the property in question, or a review of the construction drawings proposed for new facilities.

Table 1

Cross Connection Control Requirements
(Supplemental Information)

Description of Cross Connect	Assessment Of Hazard	Recommended Assembly at Fixture*
Aspirator	Health	AVB or PVB
Bedpan washers	Health	AVB or PVB
Autoclaves	Health	RPBA
Specimen Tanks	Health	AVB or PVB
Sterilizers	Health	RPBA
Cuspidors	Health	AVB or PVB
Lab Bench Equipment	Health	AVB or PVB
Autopsy and mortuary equipment	Health	AVB or PVB
Sewage pump	Health	AG
Sewage ejectors	Health	AG
Fire-fighting system (toxic liquid foam concentrates)	Health	RPBA
Connection to sewer pipe	Health	AG
Connection to plating tanks	Health	RPBA
Irrigation systems with chemical additives or agents	Health	RPBA
Connection to salt-water cooling system	Health	RPBA
Tank vats or other vessels containing toxic substances	Health	RPBA
Connection to industrial fluid systems	Health	RPBA
Dye vats or machines	Health	RPBA
Cooling towers with chemical additives	Health	RPBA
Trap primer	Health	AG

Steam generators	Non health	RPBA
Heating equipment		
Commercial	Non health	RPBA
Domestic	Non health	DCVA
Irrigation systems	Non health	DCVA, AVB, or PVB
Swimming pools		
Public	Non health	RPBA or AG
Private	Non health	PVB or AG
Vending machines	Non health	RPBA or PVB
Ornamental fountains	Non health	DCVA, AVB, or PVB
Degreasing equipment	Non health	DCVA
Lab bench equipment	Non health	AVB or PVB
Hose bibbs	Non health	AVB
Trap primers	Non health	AG
Flexible shower heads	Non health	AVB or PVB
Steam tables	Non health	AVB
Washing equipment	Non health	AVB
Shampoo basins	Non health	AVB
Kitchen equipment	Non health	AVB
Aspirators	Non health	AVB
Domestic space-heating boiler	Non health	RPBA

Note: AG = air gap; AVB – atmospheric vacuum breaker; DCVA – double check valve backflow-prevention assembly; PVB = pressure vacuum breaker; RPBA = reduced-pressure principal backflow-prevention assembly.

* AVBs and PVBs may be used to isolate health hazards under certain conditions, that is, backsiphonage situations. Additional area or premises isolation may be required.

Where a greater hazard exists (due to toxicity or other potential health impact) additional area protection with RPBA's is required.

6.0 COMPLIANCE REQUIREMENTS

6.1 General

The following compliance requirements shall govern this cross connection control program.

6.2 Schedule For Compliance

The following schedule is established as a basis for achieving compliance with the requirements of this program.

6.2.1 Existing Services With Cross-Connection Control Devices

The District shall forward a certified letter to each customer upon completing the inspection of its service connection and on-site system advising of the results of the inspection and requirements for cross connection control. The letter will define the schedule for implementing the required cross connection control actions. Payment for all cross connection control actions necessary to meet the requirements of the District including on-site piping modifications, installation, maintenance and testing of approved

backflow prevention devices; and related work shall be made either by the customer or the District as stipulated in Section 4.2. The customer will have up to thirty (30) days to install or repair required backflow prevention devices as required by the inspection. In the case of an existing cross connection which creates a health hazard, the District will require that the customer implement recommended cross connection control actions immediately. The District will work with the customer to establish a compliance schedule which is reasonable for the work which must be done. The District reserves the right to terminate water service to the customer's connection in the event of health hazards which create an unreasonable risk to the District's system.

6.2.2 New Service Connections

The District shall define the cross connection control actions required for new connections as outlined herein before. The developer will pay for all cross connection control actions necessary to meet the requirements of the District including on-site piping; installation, maintenance, and testing of approved backflow prevention devices, and related work as stipulated in Section 4.3. The District shall certify that all cross connection control actions have been completed prior to providing service to the customer's connection.

6.3 Testing and Maintenance of Backflow Prevention Devices

The District shall test and maintain required backflow prevention devices and systems, except for Collier County-owned facilities. Testing and maintenance of backflow prevention devices shall be accomplished by certified technician(s) employed by the District who have been trained in the operation and maintenance of backflow prevention devices. Each backflow prevention device shall be inspected and tested for proper operation not less than once a year or at more frequent intervals as required by the District. The results of all maintenance and testing activities shall be maintained by the District.

In the case of Collier County-owned facilities, the testing and maintenance of backflow prevention devices shall be accomplished by certified technician(s) employed or hired by Collier County who have been trained in the operation and maintenance of backflow prevention devices. Each backflow prevention device shall be inspected and tested for proper operation not less than once a year or at more frequent intervals as required by the District. The results of all maintenance and testing activities shall be forwarded to the District referencing customer address and account number.

6.4 Impact of Non-Compliance

The District may terminate water service to any site should it be determined by the District that the customer has:

- Not properly installed, maintained and periodically tested required backflow prevention devices required by the District.
- Altered its on-site piping to create cross connection hazards not known to the District.
- By-passed or altered required backflow prevention devices.