



# **CROSS CONNECTION CONTROL PROGRAM MANUAL**

## **2013 Update**

1992 City of Cocoa Cross Connection Control Program Manual

Revised 2008

Revised 2013

Approved by

Florida Department of Environmental Protection

on November 25, 2013

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- Dual Check Valve Assembly
- Double Check Valve Assembly – Below Ground (3/4” – 1” assemblies)
- Double Check Valve Assembly - Above Ground (3/4” – 2 .5” assemblies)
- Double Check Valve and Meter Assembly (3” and larger)
- Reduced Pressure Backflow Assembly

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## Purpose

The purpose of this document is to update the 1992 City of Cocoa Cross Connection Control (CCC) Program Manual, last updated in 2008. This manual was previously approved by the Florida Department of Environmental Protection (FDEP) on July 25, 2008 and adopted by the Cocoa City Council on August 26, 2008. Updates to the CCC Program Manual are required when regulations are amended, or technology is improved.

CCC Program Manuals describe the means and methods that are practiced by a community to meet FDEP requirements as set forth in Chapter 62-550, Florida Administrative Code. These rules, as amended, require that all community water systems establish a written cross connection control program for potable water systems. A CCC Program, upon implementation, is intended to detect and prevent cross connections with potable water distribution systems that may create an imminent and substantial danger to public health. CCC Programs are developed using accepted practices of the American Water Works Association (AWWA) as described in *Recommended Practice for Backflow Prevention and Cross-Connection Control Manual 14*.

## City of Cocoa CCC Program Summary

The City of Cocoa provides potable water to the community through its water plants and water distribution system. The City is required to meet state and federal requirements to protect its potable water supply. As part of these requirements, the City maintains a CCC Program. This program is approved by FDEP and the City Utilities Department, and supports the City of Cocoa's Code of Ordinances, Chapter 22, Water and Sewers, as amended. This program is intended to protect the public water supply from possible contaminants that could backflow through a service connection and possibly contaminate the City's potable water system. This manual provides information on the main components of the City's CCC Program: public education, site surveys, and installation and maintenance of CCC devices. These program components are detailed in this manual.

## Definitions

1. **Site hazard survey** is a physical assessment of property to determine the degree of hazard present at the property and the appropriate CCC device required for the site based on the degree of hazard.
2. **Degree of hazard** refers to the two levels of hazard as defined in this Manual. These levels are based on possible contaminants or pollutants that are present or have the potential of entering a site and may potentially enter the City's water supply. The degree of hazard, along with property usage, determines the proper CCC device to be installed.
3. **TREEO** is an abbreviation for the University of Florida's Center for Training, Research and Education for Environmental Occupations. The TREEO is mandated by the state of Florida to provide certifications for water and wastewater operations, including certifications associated with CCC devices. Personnel providing services defined by this program will be TREEO- certified.
4. **CCC device** is defined as a mechanical backflow prevention assembly.

5. **CCC device installation** refers to the installation of a new device based on survey results. All installations are performed by TREEO-certified personnel.
6. **CCC device maintenance** refers to the testing, repair or replacement of an existing CCC device.
7. **CCC device testing** consists of onsite testing for proper operation. All testing is performed by TREEO-certified personnel and, when required, a certified Fire Inspector.
8. **CCC device repair** refers to onsite repair of a CCC device by TREEO-certified personnel.
9. **CCC device replacement** refers to the onsite replacement of an existing CCC device by TREEO-certified personnel.

## **Record Keeping and Data Management**

All data obtained as part of the City's CCC Program will be maintained digitally and electronically. City field personnel will utilize the City's field software program, *infraMAP*. Contractors will utilize the software program *XC2*. Both *infraMAP* and *XC2* are formatted to append to the City's Geographic Information System (GIS) database where all CCC Program data are maintained for a period of no less than 10 years.

An annual report on the City's CCC Program will be prepared and submitted to FDEP with a copy kept on file for 10 years. This report will summarize survey, maintenance and installations activities undertaken by the City and/or contractors during the previous year. Personnel performing these activities will be certified as required by FDEP and their certifications will be included in the report.

Annual FDEP reports will also include information on public education and notifications. Any cross connections that were found and the resulting corrective actions will be noted in this report.

## **Public Education**

The City of Cocoa will implement a public information program as part of the CCC Program. This information will be provided to reclaimed water service customers at the time of initial connection to the City's reuse system and on an annual basis. The following information will be included in the public information package:

The City of Cocoa is required to meet state and federal requirements to protect the drinking water. As part of these requirements, the City maintains a Cross Connection Control (CCC) Program. This program is approved by Florida Department of Environmental Protection (FDEP) and City of Cocoa Utilities Department, and supports the City of Cocoa's Code of Ordinances, Chapter 22, Water and Sewers, as amended.

The City is required by FDEP to determine the need for a CCC device for each service connection and to provide the proper device when required. FDEP also requires that each existing CCC device be tested on a regular basis by a certified backflow technician. Testing results may require repair or replacement of the CCC device. Cocoa Utilities staff will provide these services or will contract with a Company that is certified to perform these services. Customers are required to provide access to

their sites at all reasonable hours for the performance of these services per City of Cocoa Code of Ordinances Section 22.

The following information defines the terminology associated with the City's CCC Program:

**A cross connection** is an actual or potential connection between any part of a potable water system and any other environment that contains other substances that, under any circumstances, would allow such substances to enter the potable water system. Other substances include gases, liquids, or solids, such as chemicals, water products, steam, water from other sources (potable or non-potable), and any matter that may change the color or taste of water or add odor to water.

**A CCC device** is a mechanical means of preventing cross connections caused by backflow or back-siphonage.

**Backflow** is the undesirable reversal of non-potable water or other substances through a cross connection into piping of a public water system or consumer's potable water system.

**Back-siphonage** is backflow caused by a negative pressure (i.e., a vacuum or partial vacuum) in a public water system or consumer's potable water system.

**Certification** for all personnel performing the activities as describe in the City's CCC Program is provided by the University of Florida's Center for Training, Research and Education for Environmental Occupations (TREEO).

For further information on the City's CCC Program, contact the City of Cocoa Utilities Department at (321) 433-8730.

## Site Surveys

### GENERAL

The City of Cocoa Utilities Department has the primary responsibility for ensuring that the proper CCC devices is installed and for verifying that no cross connection exists at each service connection within its distribution system. This is determined by performing a site survey. Cocoa Utilities staff will conduct site surveys or may contract with a company that is certified to provide these services. Customers are required to provide access to their sites at all reasonable hours for the performance of site surveys.

Properties that receive reclaimed water will be inspected at the time of connection and prior to initial service. Reclaimed water service will be initiated upon verification of the installation of proper CCC devices.

A site survey provides the information required to determine the proper CCC device for the site based on the degree of hazard as defined in the following paragraphs. If the site contains a CCC device, the site survey will note the type of device and determine whether the device is appropriate for the site. Site surveys also include an investigation of the site for possible cross connections.

Generally, site surveys are conducted through exterior evaluations only. However, some commercial and industrial site surveys may require a brief conversation with the customer followed by an internal survey of the facilities to verify the degree of hazard.

A site survey will include the following information at a minimum:

- Date
- Technician's Name
- Location ID
- Meter ID
- Address
- Customer Contact Information
- Business Name
- Business Type
- Degree of Hazard
- Type of CCC Device Present
- Recommended CCC Device
- Cross Connect Concerns and Resulting Actions

## **RESPONSIBILITIES**

The City's CCC Program is a containment program rather than an isolation program. A containment program is one that protects the water supply at the point of connection to the property owner's water service through the use of an approved CCC device. An isolation program goes further into the plumbing system of individual homes and buildings and addresses all aspects of possible cross connections within those systems. Although a site survey will note the degree of hazard for each property, it will not provide verification of proper plumbing systems past the CCC device. It is the responsibility of the property owner to provide an isolation program for their site.

The property owner's responsibility starts at the point of connection to Cocoa's water supply, described as follows:

- For aboveground CCC devices, the City is responsible for operating and maintaining the water system up to and including the piping leg and in-ground 90-degree or 45-degree fitting on the customer's side of the CCC device.
- For CCC devices below grade, the City is responsible for operating and maintaining up to and including the CCC device.

In the event of an accidental pollution or contamination of Cocoa's water supply due to a backflow on or from the property owner's premises, the property owner will promptly take steps to confine further spread of pollution or contamination within the property owner's premises. It is the responsibility of the property owner to immediately notify Cocoa Utilities of the hazardous condition by calling (321) 433-8730.

## **CROSS CONNECTION RESPONSE**

Site surveys provide information on the existing conditions at a customer's property. Should a cross connection be suspected or detected during a site survey, the surveyor will immediately contact their supervisor who will contact the City Utilities Director or authorized designee. The surveyor will remain at the premises until authorized City personnel arrive.

If a cross connection is suspected, the City Utilities Director or authorized designee will contact the property owner and/or customer and perform an immediate inspection. If the property cannot be

inspected, the Utilities Director or authorized designee may choose to discontinue water service until an inspection can be performed.

If a cross connection is detected, the City Utilities Director or authorized designee will eliminate the cross connection by either installing a CCC device or immediately discontinuing service until the contaminant source is eliminated. Water samples at the service connection and in the surrounding area will be taken to determine the extent of contamination. The Utilities Director or authorized designee will notify the FDEP and Brevard County Health Department upon verification of contamination from a cross connection. The contaminated area will be isolated and flushed until water samples are clear of contaminants. The area will remain isolated until cleared by FDEP and the Brevard County Health Department.

## **DEGREES OF HAZARD**

Site surveys provide information on the type of facility and the degree of hazard contained at a customer's property. The degree of hazard refers to the possible contaminants or pollutants that have the potential to enter the property owner's and/or Cocoa's water supply. For the City of Cocoa's CCC Program, there are two categories of hazards: low/non-health hazard and moderate/high health hazard. The degree of hazard and associated CCC device requirement are defined in the following paragraphs. For residential properties that receive reclaimed water service and contain **no** other degree of hazard, a dual check device will be installed.

### **Low/Non-Health Hazard**

A low/non-health hazard refers to contaminants that can change the aesthetic quality of the potable water system but are not toxic in any way. These contaminants may change the color, odor, or taste of the water, but they do not pose a health threat to the water consumer. Examples of low/non-health hazards include irrigation systems, public restrooms, and mop sinks. The type of CCC device required for this degree of hazard is a double check valve backflow prevention assembly, conforming to AWWA Standards. A designation of low/non-health hazard level can only be applied to the following facility types:

- Residential single family
- Residential multi-family 3 stories or less
- Commercial offices and stores with only restrooms and mop sinks

For groundwater wells located on properties that receive reclaimed water service, an air gap between the well piping and the reclaimed water system may be substituted for a double check valve backflow prevention assembly.

### **Moderate/High Health Hazards**

A moderate/high health hazard refers to contaminants that may change the aesthetic qualities of the potable water and could cause illness or death if consumed. Examples of moderate/high health hazards are onsite chemical storage/usage and medical facilities. The type of CCC device required for this degree of hazard is a reduced pressure backflow prevention assembly, conforming to AWWA standards. A designation of moderate/high health hazard level can be applied to any facility type, including the following:

- Residential single family
- Residential multi-family
- Commercial offices and stores
- Industrial warehouses and offices
- Medical offices and facilities

## **Installation and Maintenance of CCC Devices**

The City of Cocoa Utilities Department has the primary responsibility for ensuring that the proper CCC device is installed and maintained at each service connection within its distribution system. To meet these requirements, the City's CCC Program includes testing, repair, replacement, and installation of CCC devices. Cocoa Utilities staff will provide these services or may contract with a company that is certified to provide these services. Customers are required to provide access to their sites at all reasonable hours for the performance of these activities.

City of Cocoa staff will review development and construction plans for all new facilities. Residential sites will be required to provide a minimum of a double check valve backflow prevention assembly. Commercial sites will be required to provide a CCC device based on the degree of hazard present at the site. All new construction will be inspected by the City to verify that the correct device has been properly installed. No water service will be provided until this inspection is completed satisfactorily.

### **EXISTING DEVICE TESTING AND MAINTENANCE**

The maintenance of CCC devices begins with the testing of the device by a certified technician. CCC devices located at commercial and industrial sites will be tested on an annual basis. Residential CCC devices will be tested every 5 years or as required by FDEP. CCC devices that do not successfully pass the testing process shall be repaired immediately. Any CCC device that cannot be repaired must be replaced.

If a CCC device cannot be repaired or replaced immediately, the technician will contact their supervisor, who will contact the Utilities Director or authorized designee. Depending on the degree of hazard, Cocoa Utilities will determine whether the water service is to be discontinued until the repair or replacement can be completed.

Often, an existing CCC device will differ from the device recommended by the site survey. Personnel providing device maintenance are qualified to determine whether the existing device provides sufficient protection against the degree of hazard. If an existing CCC device does not meet the requirements as determined by the site survey, the device will be tested and repaired (if required) and placed into rotation for replacement as described in the following paragraphs. If the existing device cannot be repaired, the replacement device will meet the requirements of the site survey.

Maintenance data will include the following information at a minimum:

- Date
- Technician's Name
- Location ID
- Meter ID
- Business Name
- Business Type
- Customer Contact Information
- Address
- Degree of Hazard
- Type of CCC Device Tested
- Testing Results
- Type of Completed Repairs
- Re-testing Results
- Type of Replacement CCC Device



## Re-testing Results

### **INSTALLATION OF NEW CCC DEVICES**

New CCC devices will be installed as determined by the site surveys. Properties with moderate/high degrees of hazard will be installed immediately. Properties with low/non-health degrees of hazard shall be installed as part of the testing rotation described previously.

Installation instructions for CCC devices are shown in Appendix A of this Manual.

Installation of new CCC devices may require significantly more time than device replacement. New devices require removal of part of the existing piping to create room for the new device. Customers will be advised of the time required to perform this activity and given the opportunity to prepare accordingly.

CCC device installation data will include the following, at a minimum:

- Date
- Technician's Name
- Location ID
- Meter ID
- Business Name
- Business Type
- Customer Contact Information
- Address
- Type of CCC Device Installed
- Testing Results

CCC devices are required to be installed as close to the water meter as possible. This prevents any connections between the assembly and meter. In certain situations, a relocation waiver may be requested by the property owner. The final decision on the location of a CCC device will be made by the Utilities Director.

## APPENDIX A – INSTALLATION DETAILS FOR CCC DEVICES

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