

**CROSS CONNECTION CONTROL MANUAL**  
**FOR CITY OF CLERMONT**



**SEPTEMBER 1, 2015**

# **Cross-Connection Control Program Plan for the City of Clermont**

**September 1, 2015**

## **Requirement for Program Plan**

The City of Clermont, E-3354779, W-3350215, hereinafter referred to as the “community water system (CWS),” has the responsibility to protect itself from contamination caused by cross-connections on customers’ premises. A cross-connection is defined in Rule 62-550.200, Florida Administrative Code (F.A.C.), as follows:

“CROSS-CONNECTION” means any physical arrangement whereby a public water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device which contains or may contain contaminated water, sewage or other waste, or liquid of unknown or unsafe quality which may be capable of imparting contamination to the public water supply as the result of backflow. By-pass arrangements, jumper connections, removable sections, swivel or changeable devices, and other temporary or permanent devices through which or because of which backflow could occur are considered to be cross-connections.

Pursuant to Rule 62-555.360, F.A.C., the CWS is required to establish and implement a cross-connection control (CCC) program utilizing backflow protection at or for service connections from the CWS. The CCC program must include a written plan that contains, as a minimum, the following components:

- I. Legal authority for the CWS’s CCC program.
- II. The CWS’s policy establishing where backflow protection at or for service connections from the CWS is mandatory.
- III. The CWS’s policy regarding ownership, installation, inspection/testing, and maintenance of backflow protection that the CWS is requiring at or for service connections from the CWS.
- IV. The CWS’s procedures for evaluating customers’ premises to establish the category of customer and the backflow protection being required at or for the service connection(s) from the CWS to the customer.
- V. The CWS’s procedures for maintaining CCC program records.

Note: Throughout this CCC program plan, the term “customer” is used. Customer, as used herein, means the property owner and/or occupant of the premises served by the CWS (i.e., whoever interfaces with the CWS regarding water service). Also, unless otherwise defined, all CCC-related terms used in this CCC program plan have the same definitions as those contained in Rules 62-550.200 and 62-555.360, F.A.C.

## Program Plan Components

Rule 62-555.360, F.A.C., requires that written CCC program plans include certain minimum components. The minimum components are listed in Table 62-555.360-1 in Rule 62-555.360. This section includes the required minimum components. Components are numbered the same as they appear in Table 62-555.360-1.

**Component I:**     *Legal authority for the CWS’s CCC program (i.e., an ordinance, a bylaw or resolution, or water service rules and regulations).*

The CWS has adopted Resolution No. 337-C, which is included in Appendix A. The resolution authorizes the CWS to establish and implement a CCC program and references the following CWS policies:

- The CWS’s policy establishing where backflow protection at or for service connections from the CWS is mandatory.
- The CWS’s policy regarding ownership, installation, inspection/testing, and maintenance of backflow protection that the CWS is requiring at or for service connections from the CWS.

**Component II:**     *The CWS’s policy establishing where backflow protection at or for service connections from the CWS is mandatory.*

This policy applies to all new or existing customers.

The following minimum backflow protection shall be provided at or for service connections from the CWS to the following categories of customers:

| Category of Customer  | Minimum Backflow Protection <sup>1</sup> to Be Provided at or for the Service Connection from the CWS to the Customer |
|---|---|
| Beverage processing plant, including any brewery  | DC if the plant presents a low hazard <sup>2</sup> ; or RP if the plant presents a high hazard <sup>2</sup>           |
| Cannery, packing house, rendering plant, or any facility where fruit, vegetable, or animal matter is processed, excluding any premises where there is only a restaurant or food service facility  | RP  |
| Car wash  | 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 | RP  |
| Dairy, creamery, ice cream plant, cold-storage plant, or ice manufacturing plant  | RP <sup>3</sup>   |
| Dye plant   | RP  |
| Film laboratory or processing facility or film manufacturing plant, excluding any small, noncommercial darkroom facility  | RP  |

| Category of Customer  | Minimum Backflow Protection <sup>1</sup> to Be Provided at or for the Service Connection from the CWS to the Customer  |
|---|--|
| Hospital; medical research center; sanitarium; autopsy facility; medical, dental, or veterinary clinic where surgery is performed; or plasma center   | RP   |
| Laboratory, excluding any laboratory at an elementary, middle, or high school   | RP   |
| Laundry (commercial), excluding any self-service laundry or Laundromat  | RP   |
| Marine repair facility, marine cargo handling facility, or boat moorage   | RP   |
| Metal manufacturing, cleaning, processing, or fabricating facility using water in any of its operations or processes, including any aircraft or automotive manufacturing plant  | DC if the facility presents a low hazard <sup>2</sup> ; or RP if the facility presents a high hazard <sup>2</sup>  |
| Mortuary  | RP   |
| Premises where oil or gas is produced, developed, processed, blended, stored, refined, or transmitted in a pipeline or where oil or gas tanks are repaired or tested, excluding any premises where there is only a fuel dispensing facility                                     | RP   |
| Premises where there is an auxiliary or reclaimed water system <sup>4,5</sup>   | <p>A. At or for a residential service connection<sup>6</sup>: DuC<sup>7</sup></p> <p>B. At or for a non-residential service connection<sup>6</sup>: DC if the auxiliary or reclaimed water system presents a low hazard<sup>8,9</sup>; or RP if the auxiliary or reclaimed water system presents a high hazard<sup>8,9</sup></p> |
| Premises where there is a cooling tower   | RP   |
| <p>Premises where there is an irrigation system that is using potable water and that...</p> <p>I. Is connected directly to the CWS's distribution system via a dedicated irrigation service connection</p> <p>II. Is connected internally to the customer's plumbing system</p> | <p>I. At or for a residential or non-residential dedicated irrigation service connection<sup>6</sup>: PVB if backpressure cannot develop in the downstream piping<sup>10</sup>; or RP if backpressure could develop in the downstream piping<sup>10</sup></p> <p>II. None<sup>11</sup></p>                                       |

| Category of Customer   | Minimum Backflow Protection <sup>1</sup> to Be Provided at or for the Service Connection from the CWS to the Customer  |
|--|--|
| <p>Premises where there is a wet-pipe sprinkler, or wet standpipe, fire protection system that is using potable water and that...</p> <p>I. Is connected directly to the CWS's distribution system via a dedicated fire service connection<sup>12</sup></p> <p>II. Is connected internally to the customer's plumbing system</p> | <p>I.A. At or for a residential dedicated fire service connection<sup>6</sup>: DuC if the fire protection system contains no chemical additives and is not connected to an auxiliary water system<sup>4</sup>; or RP/RPDA if the fire protection system contains chemical additives or is connected to an auxiliary water system<sup>4,13</sup></p> <p>I.B. At or for a non-residential dedicated fire service connection<sup>6</sup>: DC/DCDA if the fire protection system contains no chemical additives and is not connected to an auxiliary water system<sup>4</sup>; or RP/RPDA if the fire protection system contains chemical additives or is connected to an auxiliary water system<sup>4,13</sup></p> <p>II. None<sup>11</sup></p> |
| Radioactive material processing or handling facility or nuclear reactor  | RP   |
| Paper products plant using a wet process   | RP   |
| Plating facility, including any aircraft or automotive manufacturing plant   | RP   |
| Restricted-access facility   | RP   |
| Steam boiler plant   | RP   |
| Tall building – i.e., a building with five or more floors at or above ground level   | DC if the customer has no potable water distribution lines connected to the suction side of a booster pump; or RP if the customer has one or more potable water distribution lines connected to the suction side of a booster pump   |
| Wastewater treatment plant or wastewater pumping station   | RP   |
| Customer supplied with potable water via a temporary or permanent service connection from a CWS fire hydrant   | Varies <sup>14</sup>   |

<sup>1</sup> Means of backflow protection, listed in an increasing level of protection, include the following: a dual check device (DuC); a double check valve assembly (DC) or double check detector assembly (DCDA); a pressure vacuum breaker assembly (PVB); a reduced-pressure principle assembly (RP) or reduced-pressure principle detector assembly (RPDA); and an air gap. A PVB may not be used if backpressure could develop in the downstream piping.

<sup>2</sup> The CWS shall determine the degree of hazard. “Low hazard” or “non-health hazard” and “high hazard” or “health hazard” are defined in American Water Works Association Manual of Water Supply Practices—M14, Third Edition, *Recommended Practice for Backflow Prevention and Cross-Connection Control* as follows:

- “Non-health hazard (low hazard)” means 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.

- “Health hazard (high hazard)” a cross-connection or potential cross-connection involving any substance that could, if introduced into the potable water supply, cause death or illness, spread disease, or have a high probability of causing such effects.

<sup>3</sup> A DC may be provided if it was installed before 5-5-14; and if such a DC is replaced on or after 5-5-14, it may be replaced with another DC.

<sup>4</sup> For the purpose of this table, “auxiliary water system” means a pressurized system of piping and appurtenances using auxiliary water, which is water other than the potable water being supplied by the CWS and which includes water from any natural source such as a well, pond, lake, spring, stream, river, etc., includes reclaimed water, and includes other used water or industrial fluids described in American Water Works Association Manual of Water Supply Practices—M14, Third Edition, *Recommended Practice for Backflow Prevention and Cross-Connection Control*; however, “auxiliary water system” specifically excludes any water recirculation or treatment system for a swimming pool, hot tub, or spa. (Note that reclaimed water is a specific type of auxiliary water and a reclaimed water system is a specific type of auxiliary water system.)

<sup>5</sup> The Department of Environmental Protection shall allow an exception to the requirement for backflow protection at or for a residential or non-residential service connection from a CWS to premises where there is an auxiliary or reclaimed water system if all of the following conditions are met:

- The CWS is distributing water only to land owned by the owner of the CWS.
- The owner of the CWS is also the owner of the entire auxiliary or reclaimed water system up to the points of auxiliary or reclaimed water use.
- The CWS conducts at least biennial inspections of the CWS and the entire auxiliary or reclaimed water system to detect and eliminate any cross-connections between the two systems.

<sup>6</sup> For the purpose of this table, “residential service connection” means any service connection, including any dedicated irrigation or fire service connection, that is two inches or less in diameter and that supplies water to a building, or premises, containing only dwelling units; and “non-residential service connection” means any other service connection.

<sup>7</sup> A DuC may be provided only if there is no known cross-connection between the plumbing system and the auxiliary or reclaimed water system on the customer’s premises. Upon discovery of any cross-connection between the plumbing system and any reclaimed water system on the customer’s premises, the CWS shall ensure that the cross-connection is eliminated. Upon discovery of any cross-connection between the plumbing system and any auxiliary water system other than a reclaimed water system on the customer’s premises, the CWS shall ensure that the cross-connection is eliminated or shall ensure that the backflow protection provided at or for the service connection is equal to that required at or for a non-residential service connection.

<sup>8</sup> A reclaimed water system using reclaimed water regulated under Part III of Chapter 62-610, F.A.C., is a low hazard unless the reclaimed water is stored with surface water in a pond that is part of a stormwater management system, in which case the system is a high hazard; an auxiliary water system using well water is a low hazard unless determined otherwise by the CWS; an auxiliary water system using industrial fluids or used water other than reclaimed water is a high hazard unless determined otherwise by the CWS; an auxiliary or reclaimed water system using reclaimed water not regulated under Part III of Chapter 62-610, F.A.C., or surface water is a high hazard.

<sup>9</sup> Upon discovery of any cross-connection between the plumbing system and any reclaimed water system on the customer’s premises, the CWS shall ensure that the cross-connection is eliminated.

<sup>10</sup> A DC may be provided if both of the following conditions are met:

- The dedicated irrigation service connection initially was constructed before 5-5-14.
- No chemicals are fed into the irrigation system.

<sup>11</sup> The CWS may rely on the internal backflow protection required under the *Florida Building Code* or the predecessor State plumbing code. The CWS may, but is not required to, ensure that such internal backflow protection is inspected/tested and maintained the same as backflow protection provided at or for service connections from the CWS.

<sup>12</sup> The Department of Environmental Protection shall allow an exception to the requirement for backflow

protection at or for a residential or non-residential dedicated fire service connection from a CWS to a wet-pipe sprinkler, or wet standpipe, fire protection system if both of the following conditions are met:

- The fire protection system was installed and last altered before 5-5-14.
- The fire protection system contains no chemical additives and is not connected to an auxiliary water system as defined in Footnote 4.

<sup>13</sup> Upon discovery of any cross-connection between the fire protection system and any reclaimed water system on the customer’s premises, the CWS shall ensure that the cross-connection is eliminated.

<sup>14</sup> The CWS shall ensure that backflow protection commensurate with the degree of hazard is provided at or for the service connection from its fire hydrant.

**Component III: *The CWS’s policy regarding ownership, installation, inspection/testing, and maintenance of backflow protection that the CWS is requiring at or for service connections from the CWS.***

A. Except for dual check devices (DuCs), the customer shall own, and shall be responsible for installation, inspection/testing, and maintenance of, any backflow protection required at or for a service connection from the CWS. The CWS shall own, and shall be responsible for installation and maintenance of, any DuC required at a service connection from the CWS; however, the customer shall be responsible for installation and maintenance of the thermal expansion control that is necessary, and required under the *Florida Building Code*, where a DuC is installed at a service connection to a customer using storage water heating equipment. At least 60 days before the CWS installs a DuC at the service connection to a customer, the CWS will notify the customer in writing and advise the customer to install thermal expansion control if the customer’s plumbing system includes storage water heating equipment but does not include thermal expansion control. (A notice/letter is included in Appendix C.)

The following table shows the schedule that the CWS will follow for installation of backflow protection required at or for service connections.

| Type of Service Connection  | Schedule  |
|---|---|
| New service connection to a customer in a category listed in Component II.                                      | Before water service is initiated.  |
| Existing—i.e., previously constructed—service connection to a premises where there is a reclaimed water system. | Before reclaimed water service is initiated.  |
| Existing—i.e., previously constructed—service connection where the CWS will install a dual check device (DuC).  | At least 60 days after the customer receives written notification from the CWS advising the customer to install thermal expansion control if the customer’s plumbing system includes storage water heating equipment but does not include thermal expansion control. (A notice/letter is included in Appendix C.) If the service connection is to a premises where there is an auxiliary water system, the CWS shall deliver the aforementioned written notification within 30 days after the CWS discovers the auxiliary water system and shall install the DuC 60 to 90 days after the customer receives the aforementioned written notification. |

| Type of Service Connection   | Schedule  |
|--|---|
| Existing—i.e., previously constructed—service connection to a customer in any category listed in Component II except premises where there is a reclaimed water system or service connections where the CWS will install a DuC. | Within 60 days after the CWS notifies the customer in writing to install backflow protection at or for the service connection. (A notice/letter is included in Appendix C.) |

B. All new backflow protection required at or for service connections from the CWS shall conform to, or comply with, the following standards:

- New dual check devices (DuCs) shall conform to the latest edition of American Society of Sanitary Engineering (ASSE) Standard 1024 or Canadian Standards Association (CSA) Standard B64.6 or B64.6.1.
- New double check valve assemblies shall conform to the latest edition of ASSE Standard 1015, American Water Works Association (AWWA) Standard C510, or CSA Standard B64.5.
- New double check detector assemblies shall conform to the latest edition of ASSE Standard 1048.
- New pressure vacuum breaker assemblies shall conform to the latest edition of ASSE Standard 1020 or CSA Standard B64.1.2.
- New reduced-pressure principle assemblies shall conform to the latest edition of ASSE Standard 1013, AWWA Standard C511, or CSA Standard B64.4.
- New reduced-pressure principle detector assemblies shall conform to the latest edition of ASSE Standard 1047.
- New air gaps shall comply with the latest edition of American Society of Mechanical Engineers Standard A112.1.2.

Additionally, all new customer-owned backflow preventers required at or for dedicated fire service connections from the CWS shall be listed by a nationally recognized testing laboratory, such as Underwriters Laboratories, Inc., or Factory Mutual, Inc., pursuant to Chapter 633, Florida Statutes.

New DuCs required at or for service connections from the CWS will be installed immediately downstream of the water meter and in the meter box. All other backflow protection required at or for service connections from the CWS shall be installed downstream from, and within five feet after, the CWS’s water meter box or the customer’s property line unless a deviation is approved by the CWS. The CWS will consider, and may approve, on a case-by-case basis deviations requested and justified in writing; but in no case shall there be any outlet, tee, tap, or connection of any type to or from the water piping between the water meter, or property line, and the required backflow protection.

All new backflow protection required at or for service connections from the CWS shall be installed in accordance with the manufacturer’s instructions and the installation criteria in American Water Works Association Manual of Water Supply Practices—M14, Third Edition,

*Recommended Practice for Backflow Prevention and Cross-Connection Control.* Installation criteria in the third edition of M14 are reproduced in Appendix B. Additionally, all new customer-owned backflow preventers required at or for dedicated fire service connections from the CWS shall be installed in accordance with applicable National Fire Protection Association standards adopted in Chapter 69A-3, Florida Administrative Code, and all other new customer-owned backflow protection required at or for service connections from the CWS shall be installed in accordance with the latest edition of the *Florida Building Code*.

- C. All air gaps (AGs) required at or for service connections from the CWS shall be inspected at least annually. Persons inspecting AGs required at or for service connections from the CWS shall be a certified or registered plumbing contractor or shall be a backflow preventer tester holding a current certification from one of the following organizations or schools:
- The American Backflow Prevention Association;
  - The American Society of Sanitary Engineering;
  - The American Water Works Association;
  - The Florida Water and Pollution Control Operators Association;
  - The University of Florida Center for Training, Research, and Education for Environmental Occupations
- D. All backflow preventer assemblies (i.e., double check valve assemblies and double check detector assemblies; pressure vacuum breaker assemblies; and reduced-pressure principle assemblies and reduced-pressure principle detector assemblies) required at or for non-residential service connections from the CWS shall be tested after installation or repair and at least annually thereafter and shall be repaired if they fail to meet performance standards. All backflow preventer assemblies required at or for residential service connections from the CWS shall be tested after installation or repair and at least biennially (once every two years) thereafter and shall be repaired if they fail to meet performance standards. Residential service connections are service connections, including dedicated irrigation or fire service connections, that are two inches or less in diameter and that supply water to a building, or premises, containing only dwelling units; all other service connections are non-residential service connections.

Persons testing backflow preventer assemblies required at or for dedicated fire service connections from the CWS shall be a certified Fire Protection System Contractor I or II pursuant to Chapter 633, Florida Statutes. Persons testing backflow preventer assemblies required at or for all other service connections from the CWS shall be a certified or registered plumbing contractor or shall be a backflow preventer tester holding a current certification from one of the following organizations or schools:

- The American Backflow Prevention Association;
- The American Society of Sanitary Engineering;
- The American Water Works Association;
- The Florida Water and Pollution Control Operators Association;
- The University of Florida Center for Training, Research, and Education for Environmental Occupations

Backflow preventer assemblies required at or for service connections from the CWS shall be tested using the procedures in one of the following standards or manuals:

- The latest edition of American Society of Sanitary Engineering Standards 5013, 5015, 5020, 5047, and 5048;
- The latest edition of Canadian Standards Association Standard B64.10.1;
- The latest edition of *Backflow Prevention: Theory & Practice* by the University of Florida Center for Training, Research, and Education for Environmental Occupations;
- The latest edition of the *Manual of Cross-Connection Control* by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research Center

Testing equipment used to test backflow preventer assemblies required at or for service connections from the CWS shall be verified/calibrated at least annually in accordance with the equipment manufacturer's recommendations.

- E. All dual check devices (DuCs) required at service connections from the CWS shall be refurbished or replaced at least 7 days from receiving a Major Backflow Alarm from our Neptune AMI system.

**Component IV:** *The CWS's procedures for evaluating customers' premises to establish the category of customer and the backflow protection being required at or for the service connection(s) from the CWS to the customer.*

- A. The CWS will evaluate the customer's premises at a newly constructed service connection before the CWS begins supplying water to the service connection.
- B. The CWS will evaluate the customer's premises at an existing—i.e., previously constructed—service connection whenever any of the following events occur:
- Whenever the customer connects to a reclaimed water distribution system. The CWS will coordinate with the reclaimed water supplier to ensure that reclaimed water service is not turned on until appropriate backflow protection is provided at the potable water service connection.
  - Whenever an auxiliary water system is discovered on the customer's premises.
  - Whenever a prohibited or inappropriately protected cross-connection is discovered on the customer's premises.
  - Whenever the customer's premises is altered under a building permit in a manner that could change the backflow protection required at or for a service connection to the customer. The CWS will coordinate with the local building department so the CWS will know when building permits are being applied for or issued.
- C. To evaluate the customer's premises at a service connection from the CWS, the CWS will use "a water use questionnaire" and, if necessary, will also review construction plans or conduct an on-site inspection. ("Water use questionnaire" forms are included in Appendix C.)

**Component V:    *The CWS's procedures for maintaining CCC program records.***

- A. The CWS will maintain, in either electronic or paper format, a current inventory of all backflow protection required at or for service connections from the CWS. The inventory will include the following for each service connection where backflow protection is required:
- The service connection number or other identification number used by the CWS;
  - The service connection address;
  - The service connection category (i.e., non-residential or residential) and subcategory (standard, dedicated irrigation, or dedicated fire);
  - The location of the backflow protection at/for the service connection;
  - The type of hazard isolated (i.e., the category of customer);
  - The date when backflow protection was initially installed at or for the service connection;
  - The type of current backflow protection (i.e., air gap, reduced-pressure principle assembly, reduced-pressure principle detector assembly, pressure vacuum breaker assembly, double check valve assembly, double check detector assembly, or dual check device [DuC]);
  - If the type of current backflow protection is a backflow preventer assembly, the size, manufacturer, model, serial number, and date installed; and
  - If the type of backflow protection is a DuC, the size, manufacturer, model, date installed, and if any DuC is refurbished (instead of replaced), the date refurbished.
- B. The CWS will maintain, in either electronic or paper format, records of the installation, inspection/testing, and repair of all backflow protection required at or for service connections from the CWS.

The inventory described in Component V.A. will include the date when backflow protection was initially installed at or for any service connection where backflow protection is required. Also, the inventory described in Component V.A. will include the date when any current backflow preventer assembly or any current dual check device (DuC) was installed. Furthermore, if any DuC is refurbished (instead of replaced), the inventory described in Component V.A. will include the date the DuC was refurbished.

Records of the inspection of air gaps (AGs) required at or for service connections from the CWS will be maintained by keeping either an electronic or paper copy of AG inspection reports. (An AG inspection report form is included in Appendix C.) Records of the testing and repair of backflow preventer assemblies required at or for service connections from the CWS will be maintained by keeping either an electronic or paper copy of backflow preventer assembly testing and repair reports. (A backflow preventer assembly testing and repair report form is included in Appendix C.) All AG inspection reports and all backflow preventer assembly testing and repair reports will be kept for not less than 10 years.

- C. The CWS will prepare and submit CCC program annual reports. The first annual report will

cover calendar year 2016, and subsequent annual reports will cover each calendar year thereafter. Each annual report will be prepared using the latest version of Form 62-555.900 (13), Cross-Connection Control Program Annual Report. Each annual report will be submitted to the appropriate Department of Environmental Protection district office or Approved County Health Department within three months after the end of the calendar year covered by the report.

## **Program Administration Documents**

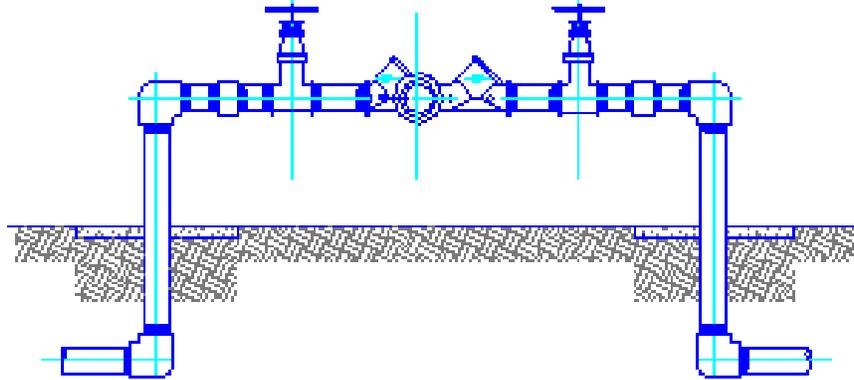
Appendix C contains forms and notices/letters used to administer the CCC program.

The CWS will notify in writing each customer who owns an air gap (AG) or backflow preventer assembly required at or for a service connection and will request that the customer have the AG inspected or backflow preventer assembly tested. Notices/letters will be delivered at least 30 days before the due date of the inspection or test. Notices/letters will specify that the inspection or test report must be returned to the CWS within 60 days after the date of the notice/letter.

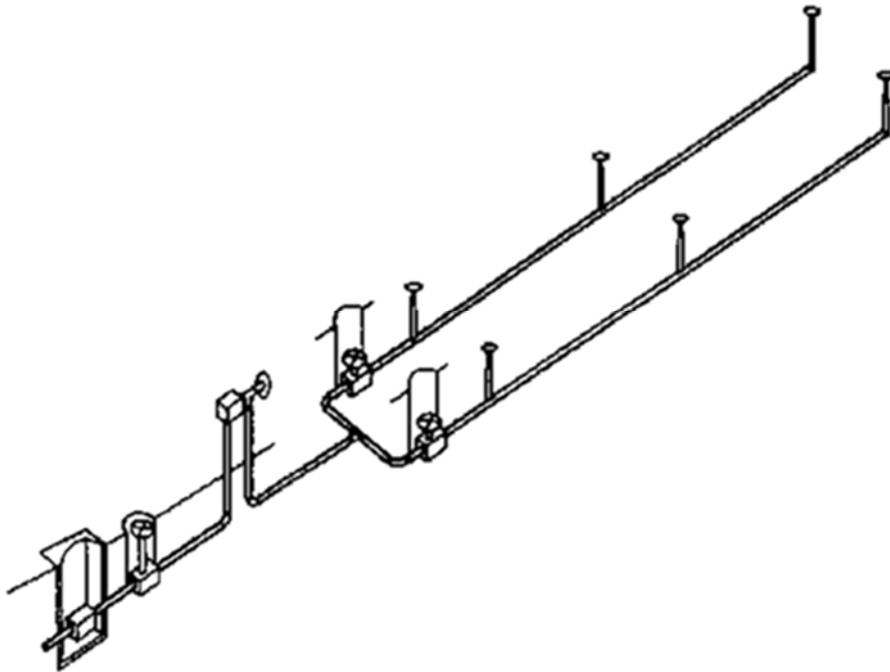
## **Appendix A**

## **Ordinance 337-C**

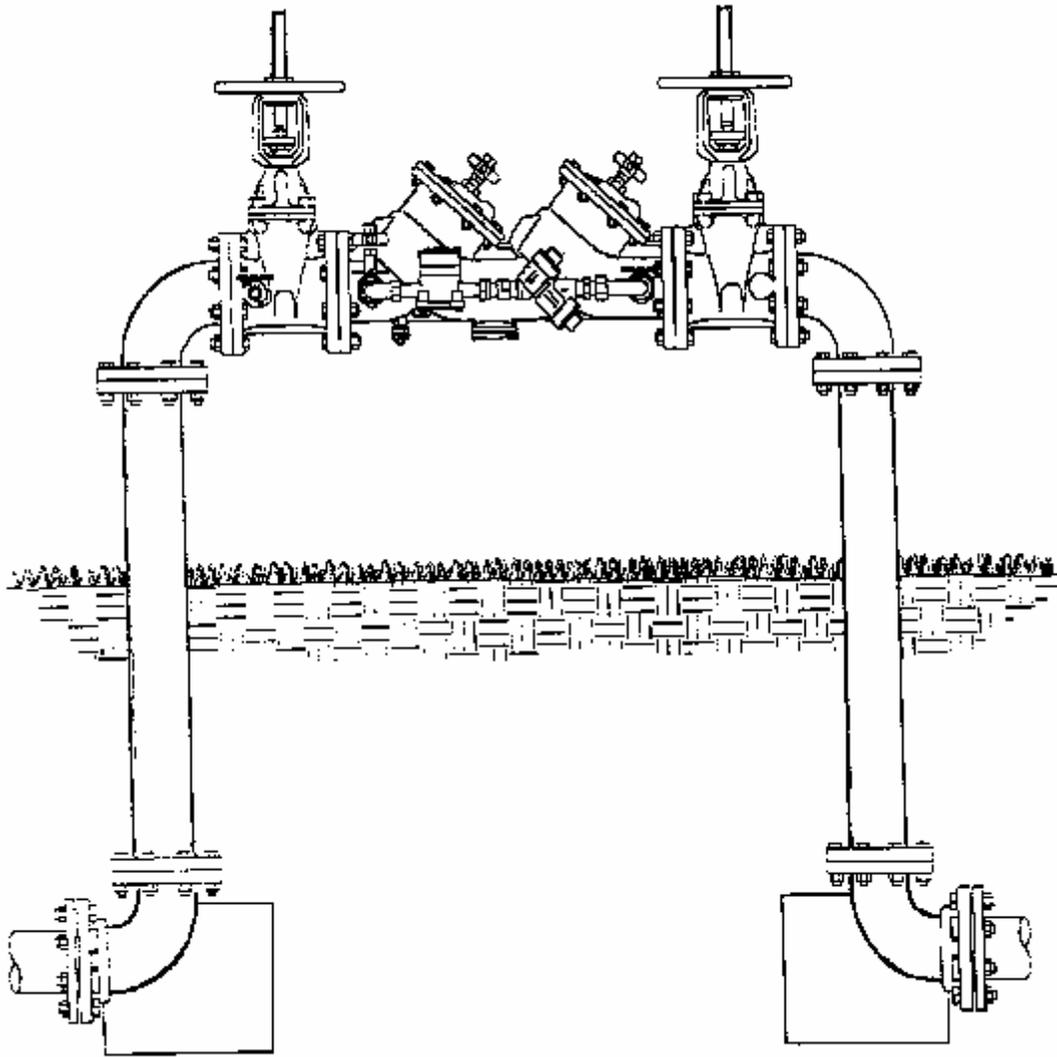
## Reduced Pressure Zone Backflow Preventer



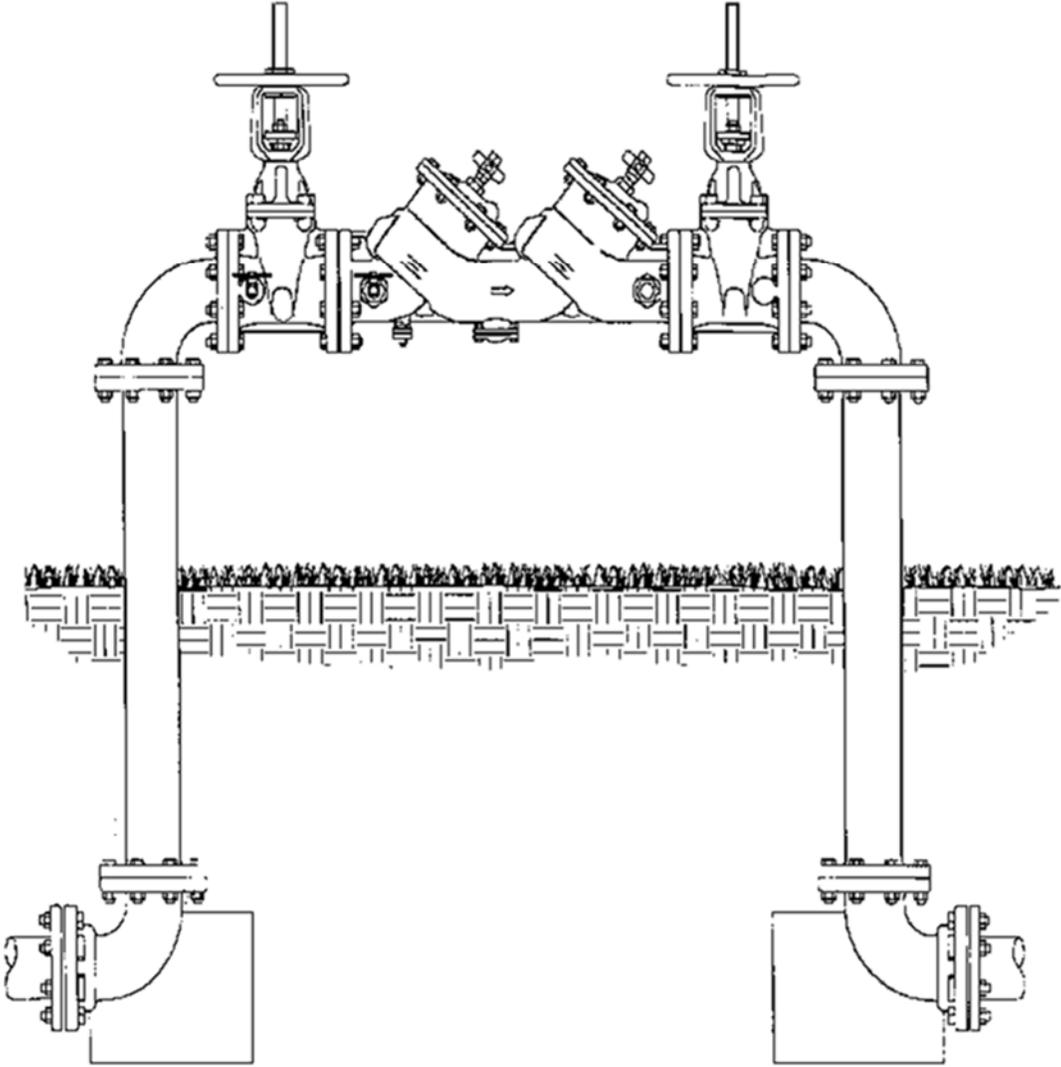
## Pressure Vacuum Breaker Assembly



## Double Detector Check Assembly



**Double Check Assembly**



## **Appendix B**

### **Installation Criteria for a Dual Check Device (DuC)**

- A DuC must be installed in the orientation as it was approved by the testing agency.
- A DuC must not be subjected to conditions that would exceed its maximum working water pressure and temperature rating. The increased pressure that can happen from creation of a closed system also must be evaluated because excessive pressure can damage the device or other plumbing components.
- A DuC should be sized hydraulically, taking into account both volume requirements and pressure loss through the device.
- A pipeline should be thoroughly flushed before a DuC is installed to ensure that no dirt or debris is delivered into the device because dirt or debris might adversely affect the DuC's working abilities.
- A DuC shall be installed where it can be inspected or replaced as necessary.

## **Installation Criteria for a Double Check Valve Assembly (DC) or Double Check Detector Assembly (DCDA)**

- A DC or DCDA must be installed in the orientation as it was approved by the testing agency with no field modifications allowed.
- A DC or DCDA must not be subjected to conditions that would exceed its maximum working water pressure and temperature rating. The increased pressure that can happen from the creation of a closed system also must be evaluated to prevent damage to the assembly or other plumbing-system components.
- A DC or DCDA shall be sized hydraulically, taking into account both volume requirements and pressure loss through the assembly.
- A DC or DCDA should not be installed in a pit or below grade when possible. If the DC or DCDA must be installed in a vault, adequate space for testing and maintenance must be provided. If the DC or DCDA must be installed below grade, the test cocks shall be sealed or plugged so water or debris cannot collect in the test cock.
- A pipeline should be thoroughly flushed before a DC or DCDA is installed to ensure that no dirt or debris is delivered to the assembly because dirt or debris might adversely affect the assembly's working abilities.
- A DC or DCDA shall be installed a minimum of 12 inches above the surrounding grade and floodplain. The installation shall not be installed where platforms, ladders, or lifts are required for access. If an assembly must be installed higher than 5 feet above grade, a permanent platform shall be installed around the assembly to provide access for workers.
- A DC or DCDA shall be installed where it can be easily field-tested and repaired as necessary. The assembly shall have adequate clearance around it to facilitate testing, disassembly, and assembly of the DC or DCDA.
- If a DC or DCDA must be subjected to environmental conditions that could freeze or heat the assembly beyond working temperatures, some means of protection should be installed to provide the correct temperature environment in and around the assembly.

### **Installation Criteria for a Pressure Vacuum Breaker Assembly (PVB)**

- A PVB must be installed in the orientation as it was approved by the testing agency.
- A PVB must not be subjected to conditions that would exceed its maximum working water pressure and temperature rating. The increased pressure that can happen from the creation of a closed system also must be evaluated because a PVB cannot be exposed to backpressure.
- A PVB shall not be installed where it is subjected to backpressure.
- A PVB should be sized hydraulically, taking into account both volume requirements and pressure loss through the assembly.
- A pipeline should be thoroughly flushed before a PVB is installed to ensure that no dirt or debris is delivered into the assembly because dirt or debris might affect the PVB's working abilities.
- A PVB must not be installed in a pit or below grade where the air inlet could become submerged in water or where fumes could be present at the air inlet because this installation might allow water or fumes to enter the assembly.
- A PVB shall be installed a minimum of 12 inches above the highest point of use and any downstream piping supplied from the assembly. The installation should not be installed where platforms, ladders, or lifts are required for access. If an assembly must be installed higher than 5 feet above grade, a permanent platform should be installed around the assembly to provide access for workers.
- A PVB shall be installed where it can be easily field-tested and repaired as necessary. The assembly shall have adequate clearance around it to facilitate disassembly, repairs, testing, and other maintenance.
- A PVB may periodically discharge water from the air inlet. The effect of this discharge on the area around the assembly must be evaluated.
- If a PVB must be subjected to environmental conditions that could freeze or heat the assembly beyond its working temperatures, some means of protection should be installed to provide the correct temperature environment in and around the assembly.

## **Installation Criteria for a Reduced-Pressure Principle Assembly (RP) or Reduced-Pressure Principle Detector Assembly (RPDA)**

- An RP or RPDA must be installed in the orientation as it was approved by the testing agency.
- An RP or RPDA must not be subjected to conditions that would exceed its maximum working water pressure and temperature rating. The increased pressure that can occur because of the creation of a closed system also must be evaluated because excessive backpressure can damage the assembly or other plumbing components.
- An RP or RPDA should be sized hydraulically, taking into account both volume requirements and pressure loss through the assembly.
- A pipeline should be thoroughly flushed before an RP or RPDA is installed to ensure that no dirt or debris is delivered into the assembly because dirt or debris might adversely affect the assembly's working abilities.
- An RP or RPDA must not be installed in a pit or below grade where the relief valve could become submerged in water or where fumes could be present at the relief-valve discharge because this installation might allow water or fumes to enter the assembly.
- An RP or RPDA shall be installed a minimum of 12 inches above the relief-valve discharge-port opening and the surrounding grade and floodplain. The installation should not be installed where platforms, ladders, or lifts are required for access. If an assembly is installed higher than 5 feet above grade, a permanent platform should be installed around the assembly to provide access for workers.
- An RP or RPDA shall be installed where it can be easily tested and repaired as necessary. The assembly shall have adequate clearance around it to facilitate disassembly, repairs, testing, and other maintenance.
- An RP or RPDA might periodically discharge water from the relief valve. The effect of this discharge from the relief valve around the assembly must be evaluated. If the RP or RPDA discharge is piped to a drain, an air-gap separation must be installed between the relief-valve discharge opening and the drain line leading to the drain.
- If an RP or RPDA must be subjected to environmental conditions that could freeze or heat the assembly beyond its working temperatures, some means of protection should be installed to provide the correct temperature environment in and around the assembly.

## **Air Gap Description**

- An air gap is a piping arrangement that provides an unobstructed vertical distance through free atmosphere between the lowest point of a water supply outlet and the overflow rim of an open, nonpressurized receiving vessel into which the outlet discharges.
- These vertical separations must be at least twice the effective opening (inside diameter) of the water supply outlet but never less than 1 inch.
- In locations where the outlet discharges within three times the inside diameter of the pipe from a single wall or other obstruction, the air gap must be increased to three times the effective opening but never less than 1.5 inches.
- In locations where the outlet discharges within four times the inside diameter of the pipe from two intersecting walls, the air gap must be increased to four times the effective opening but never less than 2 inches.
- Air gaps should not be approved for locations where there is potential for the atmosphere around the air gap to be contaminated nor should the inlet pipe be in contact with a contaminated surface or material.

## **Appendix C**

**“Water Use Questionnaire” for Non-Residential Service Connections**

Public Water System (PWS) No. E-3354779/W- PWS Name City of Clermont  
 3350215

Customer’s Name/Address: \_\_\_\_\_

Customer’s Phone No: \_\_\_\_\_

Service Connection Number(s): \_\_\_\_\_

Service Connection Address: \_\_\_\_\_

**Description of Customer’s Business or Premises at Service Connection Address:** \_\_\_\_\_

**Is your business or premises in one or more of the following categories (check all that apply)?**

|  |  |
|--|--|
| Beverage processing plant, including any brewery   |  |
| Cannery, packing house, rendering plant, or any facility where fruit, vegetable, or animal matter is processed, excluding any premises where there is only a restaurant or food service facility   |  |
| 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 Rule 62-555.320(3)(a), F.A.C., is used as an additive to the water |  |
| Dairy, creamery, ice cream plant, cold-storage plant, or ice manufacturing plant   |  |
| Dye plant  |  |
| Film laboratory or processing facility or film manufacturing plant, excluding any small, noncommercial darkroom facility   |  |
| Hospital; medical research facility; sanitarium; autopsy facility; medical, dental, or veterinary clinic where surgery is performed; or plasma center  |  |
| Laboratory, excluding any laboratory at an elementary, middle, or high school  |  |
| Laundry (commercial), excluding any self-service laundry or Laundromat   |  |
| Marine repair facility, marine cargo handling facility, or boat moorage  |  |
| Metal manufacturing, cleaning, processing, or fabricating facility using water in any of its operations or processes, including any aircraft or automotive manufacturing plant   |  |
| Mortuary   |  |
| Premises where oil or gas is produced, developed, processed, blended, stored, refined, or transmitted in a pipeline or where oil or gas tanks are repaired or tested, excluding any premises where there is only a fuel dispensing facility                        |  |
| Premises where there is an auxiliary or reclaimed water system   |  |
| Premises where there is a cooling tower  |  |
| Premises where there is an irrigation system that is using potable water and that is connected directly to the PWS’s distribution system via a dedicated irrigation service connection   |  |
| Premises where there is a wet-pipe sprinkler, or wet standpipe, fire protection system that is using potable water and that is connected directly to the PWS’s distribution system via a dedicated fire service connection   |  |
| Radioactive material processing or handling facility or nuclear reactor  |  |
| Paper products plant using a wet process   |  |
| Plating facility, including any aircraft or automotive manufacturing plant   |  |
| Restricted-access facility   |  |
| Steam boiler plant   |  |
| Tall building—i.e., a building with five or more floors at or above ground level   |  |
| Wastewater treatment plant or wastewater pumping station   |  |

Customer Representative’s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Customer Representative’s Printed Name: \_\_\_\_\_

**“Water Use Questionnaire” for Residential Service Connections**

Public Water System No. E-3354779 / W-3350215

Public Water System Name City of Clermont

Customer’s Name/Address: \_\_\_\_\_

Customer’s Phone No: \_\_\_\_\_

Service Connection Number(s): \_\_\_\_\_

Service Connection Address: \_\_\_\_\_

**Does your premises have one or more of the following (check all that apply)?**

|  |  |
|--|--|
| An auxiliary or reclaimed water system*  |  |
| An irrigation system that is using potable water and that is connected directly to the PWS’s distribution system via a separate, dedicated irrigation service connection                                     |  |
| A wet-pipe sprinkler, or wet standpipe, fire protection system that is using potable water and that is connected directly to the PWS’s distribution system via a separate, dedicated fire service connection |  |

\* “Auxiliary water system” means a pressurized system of piping and appurtenances using auxiliary water, which is water other than the potable water being supplied by the public water system and which includes water from any natural source such as a well, pond, lake, spring, stream, river, etc., and includes reclaimed water; however, “auxiliary water system” specifically excludes any water recirculation or treatment system for a swimming pool, hot tub, or spa. (Note that reclaimed water is a specific type of auxiliary water and a reclaimed water system is a specific type of auxiliary water system.)

Customer’s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Customer’s Printed Name: \_\_\_\_\_

## Air Gap Inspection Report

Public Water System (PWS) No.: E-3354779 / W-3350215

PWS Name: City of Clermont

Customer's Name/Address: \_\_\_\_\_

Service Connection No.: \_\_\_\_\_

Service Connection Address: \_\_\_\_\_

Service Connection Category: non-residential  residential

Service Connection Subcategory: standard  irrigation  fire

Location of Air Gap at/for Service Connection: \_\_\_\_\_

**Comments:**

I certify that the air gap at/for the above identified service connection complies with the requirements of the above identified PWS and has not been bypassed or otherwise been made ineffective.

Inspector's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Inspector's Printed Name: \_\_\_\_\_

Inspector's Qualification:\* \_\_\_\_\_

\* The inspector's plumbing contractor certification or registration number or the inspector's backflow preventer tester certification organization and number.

## Backflow Preventer Assembly (BPA) Testing and Repair Report

Public Water System (PWS): No. E-3354779/W-3350215 Name: City of Clermont  
 Customer Name/Address: \_\_\_\_\_  
 Service Connection (SC): No.: \_\_\_\_\_ Address: \_\_\_\_\_  
 SC: Category: non-residential  residential  Subcategory: standard  irrigation  fire   
 Location of BPA at/for SC: \_\_\_\_\_  
 BPA: Type: DC  DCDA  PVB  RP  RPDA  Size: \_\_\_\_\_  
 BPA: Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_ Serial No. \_\_\_\_\_  
 Detector Assembly Water Meter Reading: Before Test: \_\_\_\_\_ After Test: \_\_\_\_\_

| <b>Reduced-Pressure Principle Assembly</b>                     |  |  |  |  |
|--|--|--|--|--|
| <b>Double Check Valve Assembly</b>                             |  |  |  |  |
|  | <b>Check Valve #1</b>  | <b>Check Valve #2</b>  | <b>Relief Valve</b>  | <b>PVB</b>   |
| <b>Initial Test</b>  | Closed Tight <input type="checkbox"/><br>_____ PSID  | Closed Tight <input type="checkbox"/><br>_____ PSID                              | Opened at _____ PSID   | <b>Air Inlet:</b><br>Opened at _____ PSID<br>Did Not Open <input type="checkbox"/> |
| Pass <input type="checkbox"/><br>Fail <input type="checkbox"/> | Leaked <input type="checkbox"/>  | Leaked <input type="checkbox"/>  | Did Not Open <input type="checkbox"/>  | <b>Check Valve:</b><br>Held at _____ PSID<br>Leaked <input type="checkbox"/>       |
| <b>Repair</b>  | <input type="checkbox"/> Cleaned<br><input type="checkbox"/> Replaced following:   | <input type="checkbox"/> Cleaned<br><input type="checkbox"/> Replaced following: | <input type="checkbox"/> Cleaned<br><input type="checkbox"/> Replaced following: | <input type="checkbox"/> Cleaned<br><input type="checkbox"/> Replaced following:   |
| <b>Final Test</b>  | Closed Tight <input type="checkbox"/><br>_____ PSID  | Closed Tight <input type="checkbox"/><br>_____ PSID                              | Opened at _____ PSID   | <b>Air Inlet:</b><br>Opened at _____ PSID  |
| Pass <input type="checkbox"/><br>Fail <input type="checkbox"/> |  |  |  | <b>Check Valve:</b><br>Held at _____ PSID  |
| <b>Comments:</b>   |  |  |  |  |
| <b>Initial Test</b>  | I certify that I used testing procedures meeting the requirements of the above identified PWS.<br>Tester's Signature: _____ Date: _____<br>Tester's Printed Name: _____<br>Tester's Qualification: * _____<br>Tester's Gauge: Manufacturer: _____ Model: _____<br>Serial No.: _____ Date of Last Verification/Calibration: _____ |  |  |  |
| <b>Repair</b>  | Repairer's Signature: _____ Date: _____<br>Repairer's Printed Name: _____  |  |  |  |
| <b>Final Test</b>  | I certify that I used testing procedures meeting the requirements of the above identified PWS.<br>Tester's Signature: _____ Date: _____<br>Tester's Printed Name: _____<br>Tester's Qualification: * _____<br>Tester's Gauge: Manufacturer: _____ Model: _____<br>Serial No.: _____ Date of Last Verification/Calibration: _____ |  |  |  |

\* For any assembly at a dedicated fire service connection, the tester's Fire Protection System Contractor I or II certification number; for any other assembly, the tester's plumbing contractor certification or registration number or the tester's backflow preventer tester certification organization and number.