RESOLUTION NO. 20-140

A RESOLUTION OF THE CITY OF PANAMA CITY BEACH, FLORIDA, APPROVING AMENDMENTS TO THE CITY'S CROSS-CONNECTION CONTROL PROGRAM.

WHEREAS, a community water system is responsible for supplying its customers with water that meets federal and State drinking water standards;

WHEREAS, a community water system is responsible for the protection of its water distribution system from contamination or pollution due to backflow of contaminants or pollutants through water service connections; and

WHEREAS, Rule 62-555.360, Florida Administrative Code, requires that each community water system shall establish and implement a cross-connection control program utilizing backflow protection at or for service connections in order to protect the community water system from contamination caused by cross-connections on customer's premises; and

WHEREAS, on May 10, 1994, the City adopted Ordinance 427, approving a Cross-Connection Control Program; and

WHEREAS, Ordinance 427 provided that the Cross-Connection Program may be amended by resolution of the City Council from time to time to protect the health and welfare of the residents; and

WHEREAS, the Council finds and determines that amendments to the City's Cross-Connection Program relating to residential irrigation backflow prevention are necessary to establish where backflow protection at or for service connections is mandatory, and the ownership, installation, testing and maintenance requirements for mandatory backflow prevention.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Panama City Beach, that from and after the effective date of this Resolution, the updated Cross-Connection Control Program for the City of Panama City Beach, dated July 15, 2020, attached and incorporated herein as Exhibit A, is hereby adopted to establish where backflow protection at or for service connections is mandatory and the requirements regarding ownership, installation, inspection/testing, and maintenance of mandatory backflow protection at or for service connections. The City's prior cross-connection control program dated April 12, 1994, shall be repealed, rescinded, superseded, and replaced by this resolution.

This resolution shall become effective immediately upon its passage. Officers and agents of the City shall not enforce any penalty against existing customers for violation of this program prior to July 24, 2022.

PASSED AND ADOPTED in regular session by the City of Panama City Beach on the 23rd day of July, 2020.

CITY OF PANAMA CITY BEACH

By: _____
Mark Sheldon, Mayor

ATTEST:

_____
Jo Smith, Interim City Clerk

CITY OF PANAMA CITY BEACH, FLORIDA

CROSS-CONNECTION CONTROL PROGRAM

REVISED JULY 2020

INTRODUCTION

The City of Panama City Beach Water Supply System, PWS 1030515, 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.

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

A. On May 10, 1994, the City adopted Ordinance 427, subsequently amended by Ordinance 603 (collectively, the "Ordinance"), establishing and implementing the City of Panama City Beach Cross-Connection Program dated April 12, 1994. Pursuant to that Ordinance, the City has adopted Resolution No. 20-140 which is included in Appendix A. The resolution approves substantial updates to the City's 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.

B. *Definitions.* 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.

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).

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[1] 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[2]; or RP if the plant presents a high hazard[2]
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

Category of Customer	Minimum Backflow Protection[1] to Be Provided at or for the Service Connection from the CWS to the Customer
Dairy, creamery, ice cream plant, cold-storage plant, or ice manufacturing plant	RP[3]
Dye plant	RP
Film laboratory or processing facility or film manufacturing plant, excluding any small, noncommercial darkroom facility	RP
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[2]; or RP if the facility presents a high hazard[2]
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[4,5]	A. At or for a residential service connection[6]: DuC[7] B. At or for a non-residential service connection[6]: DC if the auxiliary or reclaimed water system presents a low hazard[8,9]; or RP if the auxiliary or reclaimed water system presents a high hazard[8,9]
Premises where there is a cooling tower	RP
Premises where there is an irrigation system that is using potable water and that… I. Is connected directly to the CWS's distribution system via a dedicated irrigation service connection II. Is connected internally to the customer's plumbing system	I. At or for a residential or non-residential dedicated irrigation service connection[6]: PVB if backpressure cannot develop in the downstream piping[10]; or RP if backpressure could develop in the downstream piping[10] II. None[11]

Category of Customer	Minimum Backflow Protection[1] to Be Provided at or for the Service Connection from the CWS to the Customer
Premises where there is a wet-pipe sprinkler, or wet standpipe, fire protection system that is using potable water and that… I. Is connected directly to the CWS's distribution system via a dedicated fire service connection[12]	I.A. At or for a residential dedicated fire service connection[6]: DuC if the fire protection system contains no chemical additives and is not connected to an auxiliary water system[4]; or RP/RPDA if the fire protection system contains chemical additives or is connected to an auxiliary water system[4,13] I.B. At or for a non-residential dedicated fire service connection[6]: DC/DCDA if the fire protection system contains no chemical additives and is not connected to an auxiliary water system[4]; or RP/RPDA if the fire protection system contains chemical additives or is connected to an auxiliary water system[4,13]
II. Is connected internally to the customer's plumbing system	II. None[11]
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[14]

[1] 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.

[2] 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.

[3] 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.

[4] 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.)

[5] 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.

[6] 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.

[7] 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.

[8] 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.

[9] 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.

[10] 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.

[11] 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.

[12] 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.

[13] 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.

[14] 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.

Consideration for Fire Service Lines

Fire service lines may feed internal fire sprinkling systems, hose connections, storage tanks, fire hydrants and other types of suppression systems thus the types of fire suppression is classified on the basis of water source and arrangements of the water supply. AWWA categorizes fire suppression systems into six (6) distinct classes (Class 1 through Class 6.) The description and plumbing for the variety of possible fire suppression plumbing arrangements is beyond the scope of this document and for any fire service line that includes the connection of any plumbing beyond fire sprinkling systems, the reader is referred to AWWA Recommended Practices for Backflow Prevention and Cross-Connection Control M14 and NFPA, Chapter 13.

Fire service lines connected directly to public water mains only where no pumps, tanks, and there are no reservoirs, or physical connection from other water supplies and there are no antifreeze or other additives of any kind and where all sprinkler drains discharge to the atmosphere, dry wells, or other safe drains or outlets may not constitute a health hazard condition. However, if any of the following conditions exist backflow prevention is required.

Examples of Special Conditions Requiring Backflow Prevention Assemblies on Fire Sprinkling Systems

1. Underground fire sprinkler pipelines parallel to and within 10 ft (3 m) horizontally of sewer pipelines or other pipelines carrying significantly toxic materials.
2. When water is supplied to a site or an area from two or more services of a water utility or from two different water utilities.
3. Occupancies (or changes in occupancies) that involve the use, storage, or handling of types and quantities of materials in a manner that could present a significant health hazard to the domestic supply.
4. Premises with unusually complex piping systems (usually these premises will have an approved backflow-prevention assembly on their domestic service piping).
5. Systems with pumper connections in which non-toxic corrosion inhibitors or other non-toxic chemicals are added to tanks of fire trucks, or where the water purveyor cannot be assured of the potability of the input to the pumper connection.

Source: AWWA Recommended Practices for Backflow Prevention And Cross-Connection Control M14.

Because of the potential for Cross-Connections from internal plumbing or for consideration of the conditions listed above, backflow prevention assemblies are often required by the water system. At a minimum, for service lines supplying fire sprinkler systems only, the service line should be protected by a minimum of a Double Check Valve Assembly.

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 (DuC), 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 (DuC) 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 DuC devices 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; or
- Any other organization or school approved in writing by the CWS.

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; or
- Any other standard or manual approved in writing by the CWS.

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 (DuC) required at service connections from the CWS shall be refurbished or replaced at least once every 10 years or at a lesser frequency if the CWS determines and documents that the lesser frequency is appropriate based on data from spot-testing DuC devices at service connections or based on data from backflow sensing meters at service connections.

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 proposed plan documents for new facilities to establish the category prior to construction and confirm compliance with the CWS Program 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 2020, 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.

Component VI: ***Penalty for Non-compliance.***

Water service will be discontinued after reasonable notice to the Customer if a violation of this Ordinance exists on the premises, and such other precautionary measures may be taken as are deemed necessary to eliminate any danger to the potable water. Water service will be discontinued if the proper backflow prevention assembly is not installed or not tested at least annually or not repaired when the assembly fails to meet minimum design standards. Water service shall not be restored until the danger had been eliminated in compliance with the provisions of this Ordinance.

Program Administration Documents

Appendix A contains resolution establishing a Cross Connection Control Program
Appendix B contains installation criteria for backflow devices
Appendix C contains forms and notices/letters used to administer the CCC program
Appendix D contains test and maintenance report form for cross connection devices
Appendix E contains definitions

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
RESOLUTION ESTABLISHING CROSS CONNECTION PROGRAM

APPENDIX B
INSTALLATION CRITERIA

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 device'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 shall not be installed in a pit or below grade.
- 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.

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, non-pressurized 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
FORMS

[City Letterhead]
[Insert Date]
[Insert Customer Name]
[Insert Customer Street Address]
[Insert Customer City, State, and Zip Code]

RE: [Insert service connection number]
[Insert service connection address]

Dear [Insert Customer Name]:

As required by the Florida Department of Environmental Protection and Rule 62-555.360, Florida Administrative Code, the City of Panama City Beach Water Supply System has updated its Cross-Connection Control (CCC) Program utilizing backflow protection at or for service connections from the water system in order to protect the water system from contamination caused by cross-connections on customers' premises. Under the new FDEP mandate, a backflow device is now required at water irrigation system meters.

This letter is to advise you that you need to have a backflow device installed. There are two types available, depending on the particulars of your property elevations and irrigation system installation.

We recommend you consult with a certified or registered plumbing contractor to determine the best solution for your specific needs. An appropriate device will need to be installed and tested within 60 days from the date of this notification letter. Your device will need to be tested annually by a licensed tester, repaired if necessary to meet the CCC Program requirements, and those results will be forwarded to the City. Failure to have the correct assembly installed will result in disconnection from the City system.

If you have any questions or need further information regarding the Cross-Connection Control Program, please contact Shedric Walker at (850) 233-5100 or by email, at swalker@pcbgov.com.

Sincerely,

[ ], PCB Utilities Department

[City Letterhead]
[Insert Date]
[Insert Customer Name]
[Insert Customer Street Address]
[Insert Customer City, State, and Zip Code]

RE: [Insert service connection number]
[Insert service connection address]

Dear [Insert Customer Name]:

As required by the Florida Department of Environmental Protection and Rule 62-555.360, Florida Administrative Code, the City of Panama City Beach Water Supply System has updated its Cross-Connection Control (CCC) Program utilizing backflow protection at or for service connections from the water system in order to protect the water system from contamination caused by cross-connections on customers' premises. Under our CCC Program, we will install a backflow preventer in the meter box at the above referenced service connection.

This letter is to advise you that you might need to have thermal expansion control installed in the plumbing system connected to the above referenced service connection. When water is heated, it expands and requires more volume; this is called thermal expansion. A backflow preventer installed at a service connection will stop heated water in the customer's plumbing system from expanding back into the public water system; the backflow preventer creates what is called a closed plumbing system at the customer's premises. Thermal expansion in a closed plumbing system will cause an increase in pressure in the system. The increased pressure usually causes the temperature and pressure relief (T&P) valve on a water heater tank to open and discharge water from the water heater tank. But a T&P valve is not intended to be used for routine thermal expansion control, and if a T&P valve fails, the water heater tank might explode.

The current *Florida Building Code* requires that thermal expansion control shall be installed in closed plumbing systems using a water heater tank. **If your plumbing system includes a water heater tank but does not include thermal expansion control, you are advised to have thermal expansion control installed in your plumbing system within 60 days of the date of this letter.** We recommend you consult with a certified or registered plumbing contractor to determine the best solution for your specific needs.

If you have any questions or need further information regarding the Cross-Connection Control Program, please contact Shedric Walker at (850) 233-5100 or by email, at swalker@pcbgov.com.

Sincerely,

[ ], PCB Utilities Department

[City Letterhead]

[date]
[Customer Name]
[Mailing Address]
[Mailing Address]

Dear Customer ,

As required by the Florida Department of Environmental Protection and Rule 62-555.360, Florida Administrative Code, the City of Panama City Beach Water Supply System has updated its Cross-Connection Control (CCC) Program utilizing backflow protection at or for service connections from the water system in order to protect the water system from contamination caused by cross-connections on customers' premises. Under our CCC program, the customer-owned backflow preventer assembly/device located at the above referenced water service connection is due for required testing to ensure that it is functioning properly.

Reference:
[Device Location/Business Name]
[Due Date]
[Serial #:]

A successful test of the device must be completed by a Certified Tester and the results sent to this department. If the assembly is at a fire service connection, the testing must be conducted by a certified Fire Protection System Contractor I or II. The test results must be received by our office no later than the due date indicated above.

If you have any questions or need further information regarding the Cross-Connection Control Program, please contact Shedric Walker at (850) 233-5100 or by email, at swalker@pcbgov.com.

Your prompt attention to this matter would be greatly appreciated.

Sincerely,

[ ]
PCB Utilities Department

Enclosures: Backflow Preventer Assembly Testing & Maintenance Report & partial list of certified testers

"Water Use Questionnaire" for Non-Residential Service Connections

Public Water System (PWS) No. 1030515 **PWS Name** City of Panama City Beach Water Supply System

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. 1030515

Public Water System Name Panama City Beach Water Supply System

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.: 1030515

PWS Name: Panama City Beach Water Supply System

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.

APPENDIX D
TEST AND MAINTENANCE REPORT

TEST & MAINTENANCE REPORT

CROSS CONNECTION CONTROL DEVICES

Name of Premise: ______________________________

Street Address: ______________________________

Device Location: ______________________________

Type of Device: RPZ ☐ DC ☐ PVB ☐ Size: ______________

Manufacturer & Model: ______________ Serial Number: ______

Pressure Drop across First Check Valve: ________ psi Line Pressure at Time of Test: ______psi

	Check Valve # 1	Check Valve #2	Differential Pressure Relief Valve	Pressure Vacuum Breaker
INITIAL	1. Leaked ☐	1. Leaked ☐	Opened at ____ lbs.	Air inlet opened at ____ lbs
	2. Closed tight ☐	2. Closed tight ☐	Did not open ☐	Did not open ☐
REPAIRS	Cleaned ☐	Cleaned ☐	Cleaned ☐	Check valve:
	Replaced: Rubber parts kits ☐ C.V. assembly ☐	Replaced: Rubber parts kits ☐ C.V. assembly ☐	Replaced: Rubber parts kits ☐ C.V. assembly ☐	Leaked ☐ Closed tight ☐
	Or Disc ☐	Or Disc ☐	Or Disc ☐	Cleaned ☐ Replaced:
	O-rings ☐	O-rings ☐	O-rings ☐	C.V. assembly ☐
	Seat ☐	Seat ☐	Seat ☐	Disc air inlet ☐
	Spring ☐	Spring ☐	Spring ☐	Spring ☐
	Stem/guide ☐	Stem/guide ☐	Stem/guide ☐	Retainer ☐
	Retainer ☐	Retainer ☐	Retainer ☐	Guide ☐
	Locknuts ☐	Locknuts ☐	Locknuts ☐	O-ring ☐
	Other ☐	Other ☐	Other ☐	Other ☐
FINAL	Closed tight ☐	Closed tight ☐	Opened at ___ lbs Reduced pressure	Satisfactory ☐

Remarks: ____

____

Initial test by: ______________
Certified Tester Number: ________ Date: ____________
Repaired by: ______________ Date: ____________
Final test by: ______________Certified Tester Number: __________ Date: ______

APPENDIX E
DEFINITIONS

Definitions

Approved

Accepted by the City of Panama City Beach Utilities Director or his designated Representative.

Auxiliary Water Supply

Any water supply on or available to the premises other than the purveyor's approved public potable water supply. These auxiliary waters may include water from another purveyor's public water supply or any natural source(s) such as a well, spring, river, stream, harbor, etc., or "used waters" or "industrial fluids". These waters may be polluted or contaminated or they may be objectionable and constitute an unacceptable water source over which the water purveyor does not have sanitary control.

Backflow

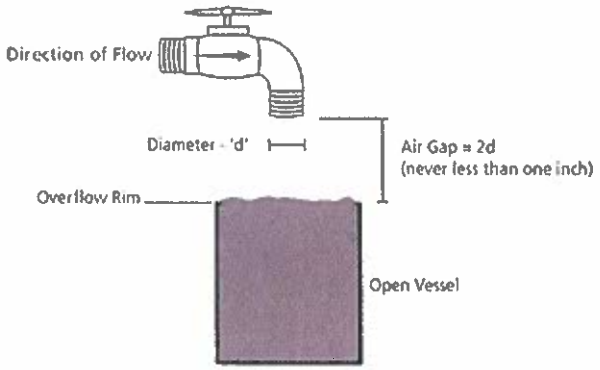
The flow of water or other liquids, mixtures, or substances under pressure into the distribution piping of a potable water supply system from any source or sources other than its intended source.

Back-Siphonage

The flow of water or other liquids, mixtures, or substances into the distribution piping of a potable water supply system from any source other than its intended source caused by the sudden reduction of pressure in the potable water supply system.

Backflow Preventers

Air Gap (AG)



An air gap is a vertical, physical separation between the end of a water supply outlet and the flood-level rim of a receiving vessel. This separation must be at least twice the diameter of the water supply outlet and never less than one inch. An air gap is considered the maximum protection available against backpressure backflow or backsiphonage but is not always practical and can easily be bypassed.

An air gap is measured vertically from the lowest end of the supply pipe to the flood level rim or highest possible water level of the fixture or tank into which it discharges. In general, the separation must be twice the supply pipe inside diameter, but never less than one inch. The close proximity of walls or obstructions will necessitate the use of a larger air gap. A larger air gap will also be required if foaming materials are added to the reservoir so that foam does not back up into the supply pipe.

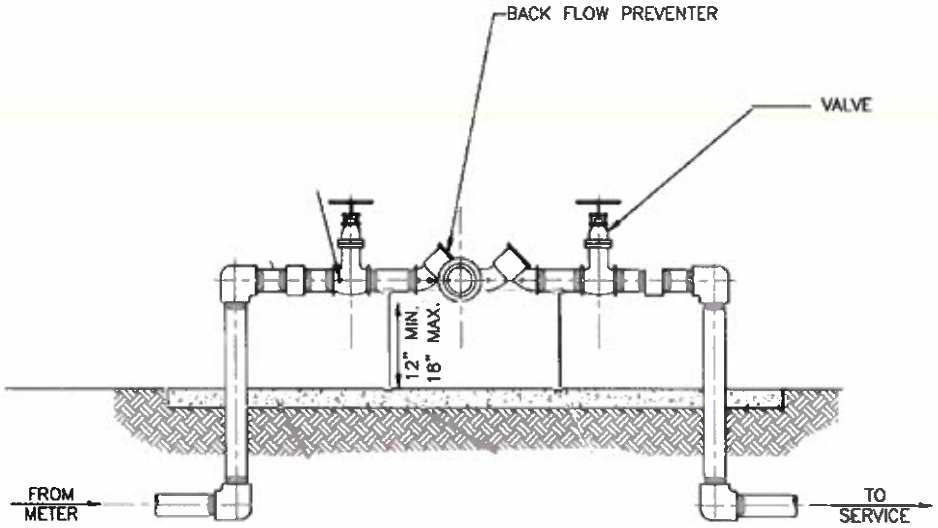
Advantages:

- Very safe and reliable if properly installed and maintained
- Provide maximum protection due to physical separation of potable and non-potable water
- Easy to inspect

Limitations:

- Easy to bypass or defeat with funnels or hoses
- Supply pressure is lost, requiring reservoir and additional pumping equipment
- Undesirable splashing may occur
- Incoming water may be exposed to airborne contaminants or lose residual chlorine

Reduced Pressure Principle Backflow Preventer (RP)



A Reduced Pressure Backflow Prevention Assembly may be used to isolate health hazards in place of an Air Gap. It consists of two independently acting check valves, an automatically operated pressure differential relief valve located between the two check valves, and watertight valves located at each end of the assembly, together with four properly located test cocks for testing the operation of the device. This assembly will indicate leakage through one or both check valves or the relief valve by the discharge of water from the relief valve port. During normal operation, both check valves remain closed until there is a demand for water. The differential relief valve remains closed because the inlet pressure is higher than the pressure in the intermediate zone. The second check remains open as water flows through the device. In opening and closing the check valves, the water pressure may be reduced by 4 to 20 psi depending upon the assembly design.

During a backpressure condition, pressure increases downstream of the assembly and both check valves close to prevent backflow. If the second check valve is prevented from closing tightly, leakage back into the zone between the check valves will increase the pressure in the zone and cause the relief valve to open. Water in the zone will then be discharged.

During backsiphonage, the supply pressure drops and the relief valve opens automatically and drains enough water from the zone to maintain pressure in the zone lower than the supply pressure. The second check valve closes to prevent downstream water from draining through the relief valve.

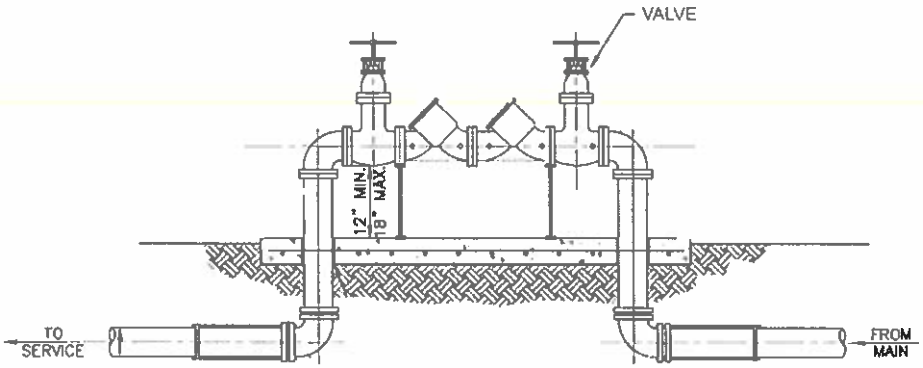
Advantages:

- Protects against both backpressure and backsiphonage
- Can be used under constant pressure
- An RP is effective against backpressure backflow and backsiphonage
- Malfunctioning is easily indicated by discharge of water from the relief valve.

Limitations:

- Pressure loss of 6-12 psi across the assembly and must be installed above grade

Double Check Valve Assembly (DC)



A Double Check Valve is effective against backpressure backflow and backsiphonage but should be used to isolate only non-health hazards.

A Double Check Valve Assembly consists of two single independently acting check valves with watertight valves located at each end of the assembly, and four properly located test cocks for testing the water tightness of each check valve. During normal operation, both check valves remain closed until there is a demand for water. In the event of backflow, both check valves close preventing reversal of flow.

Two standard plumbing check valves in series may not be used in place of the double check valve assembly due to the necessity for testing. The Double Check Valve Assembly is an integral assembly designed specifically for backflow prevention.

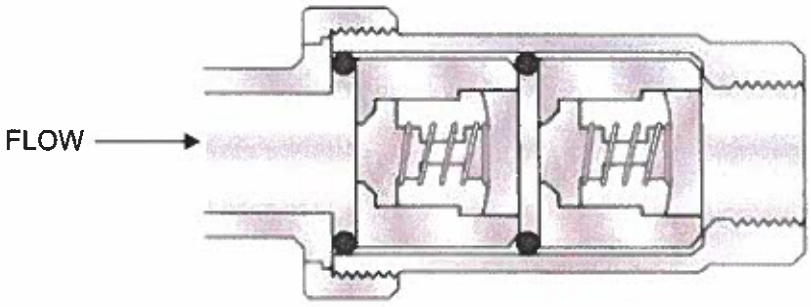
Advantages:

- Protect against backflow due to both backpressure and backsiphonage
- May be used under continuous pressure
- Little pressure loss occurs across the device

Limitations:

- No external indication of failure
- May only be used in low hazard situations

Residential Dual Check Valve (DuC)



Dual check valves may not be used for health or high hazards. They are an acceptable solution for preventing potential backflow and backsiphonage for service connections in water service areas that are

also served with reclaimed water. They are sized for use on small supply lines (1" or less) and are to be installed immediately downstream of the meter.

Residential Dual Check Valve Backflow Preventers consist of two independently operating check valves. It usually does not include shutoff valves, may or may not be equipped with test cocks or ports, and is generally less reliable than a DCVA. During normal operation, both check valves remain closed until there is a demand for water. In the event of backflow, both checks close to prevent reversal of flow.

Dual Checks may be used for continuous pressure applications and will protect against both backsiphonage and backpressure

NOTE: Consideration must be given to thermal expansion problems that may arise in the home after installation of a dual check device.

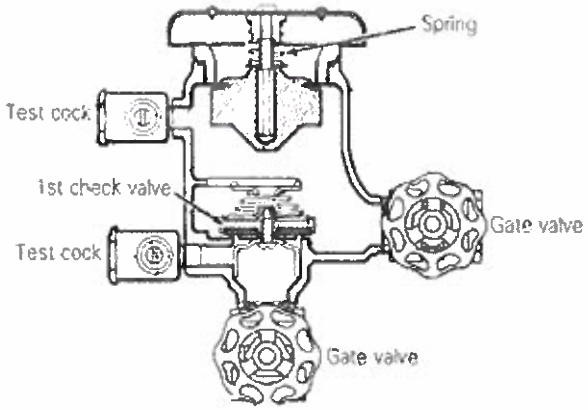
Advantages:

- Protect against both backsiphonage and backpressure in low hazard situations
- May be used under continuous pressure
- Low initial installation cost
- May be Used for Reclaimed Water

Limitations:

- May be used only for residential applications
- No external indication of failure
- Must be replaced in compliance with program Component IIIE.

Pressure Vacuum Breaker (PVB)



A PVB may be used to isolate high or low hazards but is effective against backsiphonage only. This assembly is intended to be used under constant pressure conditions.

It is a mechanical backflow preventer that consists of an independently acting, spring-loaded check valve and an independently acting, loaded air inlet valve on the discharge side of the check valve. It includes shutoff valves at each end of the assembly and is equipped with test cocks.

The pressure vacuum breaker uses loading to actuate the atmospheric vent only when backsiphonage occurs or when the line is depressurized. Two gate valves, test cocks and an additional check are also added. This assembly differs from the atmospheric vacuum breaker in that a spring has been added to the check valve.

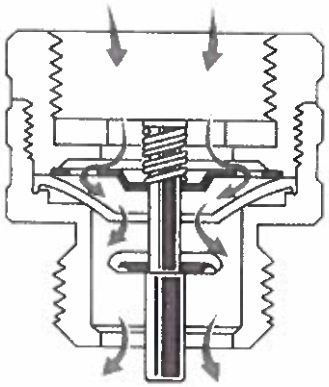
Advantages:

- Sometimes less expensive than alternatives

Limitations:

- Does not protect against backflow due to backpressure.
- May only be used in non-health or low hazard situations
- Cannot be installed if chemicals are used.

Hose Bibb Vacuum Breaker (Isolation)



Hose bibb Vacuum Breakers are not approved for health or high hazard situations but provide an inexpensive means of isolating potential backsiphonage situation caused by connections of hoses to outside spigots.

The device consists of a spring loaded check valve that seals against an atmospheric outlet when water is flowing. When the water supply is turned off, the device vents to atmosphere, thus protecting against backsiphonage.

These assemblies are suitable only for isolation in situations where outside spigots may be used to connect hoses. Hoses pose both non-health and health threats. Health threats are introduced when water pressure is used in combination with a hose to apply fertilizers or herbicides. Hoses may also be unintentionally submerged in toxic or microbially contaminated liquids that can back siphon under the right conditions.

Advantages:

- Inexpensive method of isolating hoses
- Isolation of hose problems resolves most customer complaints

Limitations:

- Does not protect against backflow due to backpressure.
- May only be used in for isolation and is not acceptable for protection against health or high hazards.
- Will fail to operate properly if there is a shut-off valve installed downstream.

Contamination

Means an impairment of the quality of the potable water supply system by sewage, industrial fluids, or waste fluids, compounds, or other materials to a degree which creates an actual hazard to the public health through poisoning or through the spread of disease.

Cross-Connection

Any physical connection or arrangement of piping or fixtures between two otherwise separate piping systems, one of which contains potable water and the other non-potable water or industrial fluids of questionably safety,
through which, or because of which, backflow or back-siphonage may occur into the potable water system. A
water service connection between a public potable water distribution system and a customer's water distribution system which is cross-connected to a contaminated fixture, industrial fluid system, or with potentially contaminated supply or auxiliary water system, constitutes one type

of cross-connection. Other types of cross-connections include connectors such as swing connections, removable sections, four-way valves, spools, dummy sections of pipe, swivel or change-over devices, sliding multiport tubes, solid connections, etc.

Cross-Connection, Controlled

A connection between a potable water system and a non-potable water system with an approved backflow prevention device properly installed that will continuously afford the protection commensurate with the degree of hazard.

Cross-Connection Control by Containment

The installation of an approved backflow prevention device at the water service connection to any customer's premises where it is physically and economically infeasible to find and permanently eliminate or control all actual or potential cross-connections within the customer's water system; or it shall mean the installation of an approved backflow prevention device on the service line leading to and supplying a portion of a customer's water system where there are actual or potential cross-connections which cannot be effectively eliminated or controlled at the point of cross-connection.

Hazard, Degree of:

The term is derived from an evaluation of the potential risk to public health and the adverse effect of the hazard upon the potable water system.

a. Hazard, Health

Any condition, device or practice in the water supply system and its operation which could create, or in the judgment of the Panama City Beach Utilities Department, may create a danger to the health and wellbeing of the water customer. An example of a health hazard is a structural defect, including cross-connections, in a water supply system.

b. Hazard, Plumbing

A plumbing type cross-connection in a customer's potable water system that has not been properly protected by a vacuum breaker, air-gap separation or backflow prevention device. Unprotected plumbing type cross-connections are considered to be a health hazard.

c. Hazard, Pollution

An actual or potential threat to the physical properties of the water supply system or to the potability of the public or the customer's potable water system, but which would constitute a nuisance or be aesthetically objectionable or could cause damage to the system or its appurtenances, but would not be dangerous to health.

d. Hazard, System

An actual or potential threat of severe damage to the physical properties of the public potable water supply system or the customer's potable water system or of a pollutant or contaminant which would have a protracted effect on the quality of the potable water in the system.

Industrial Fluids System

Any system containing a fluid or solution which may be chemically, biologically or otherwise contaminated or polluted in a form or approved water supply. This may include, but not be limited to:

Polluted or contaminated waters;

All types of process waters and "used waters" originating from the public potable water system which may have deteriorated in sanitary quality;

Chemicals in fluid form;

Plating acids and alkalis;

Circulated cooling towers that are chemically or biologically treated or stabilized with toxic substances;

Contaminated natural waters such as from wells, springs, rivers, bays, harbors, seas, irrigation canals or systems, etc. Oils, gases, glycerin, paraffins, caustic and acid solutions and other liquids and gaseous fluids in industrial or other purposes; or for firefighting purposes.

Pollution

Means the presence of any foreign substance (organic, inorganic, or biological) in water which

tends to degrade its quality so as to constitute a hazard to impair the usefulness of quality of the water to a degree which does not create an actual hazard to the public heath, but which does adversely and unreasonable affect such waters for domestic use.

Public Utility Director/Designated Agent

The Public Utility Director in charge of the Utility Department of the City of Panama City Beach is vested with the authority for the implementation of an effective cross-connection control program and for the enforcement of the provisions of this program. The Utilities Director may assign the enforcement of this program to the agent, or employee of his choice.

Water, Potable

Any water which, according to recognized standards, is safe for human consumption.

Water, Non-Potable

Water which is not safe for human consumption or which is of questionable potability.

Water Purveyor

This term shall mean the owner or operator of the public potable water system supplying an approved water supply to the public. As used herein, the terms water purveyor and Panama City Beach Utilities Department may be used synonymously.

Water, Service Connections

The terminal end of a service connection from the public potable water system, i.e., where the water purveyor loses jurisdiction and sanitary control over the water at its point of delivery to the customer's water system. If a meter is installed at the end of the service connection, then the service connection shall mean the downstream end of the meter. There should be no unprotected takeoffs from the service line ahead of any meter or backflow prevention device located at the point of delivery to the customer's water system. Service connections shall also include water service connections from a fire hydrant and all other emergency or temporary water service connections from the public potable water system.

Water, Used

Any water supplied by a water purveyor from a public potable water system to a customer's water system after it has passed through the point of delivery and is no longer under the sanitary control of the water purveyor.