Polk County Utilities, Florida

CROSS CONNECTION CONTROL POLICY MANUAL

Utilities Code Reference Manual 6(C)

Polk County Board of County Commissioners

CROSS CONNECTION CONTROL POLICY MANUAL
SUMMARY OF CHANGES

Authorization #1 - Amendments Effective March 31, 2012

Appendix	Section Name	Amendment Description
A-100:	Approved Cross Connection Control Assemblies	Updated manufacturer and model (Wilkins) for approved cross connection control assemblies

Authorization #5 - Amendments Effective September 10, 2014

10.4 Definitions	Section Name	Amendment Description
10.4.C	Definitions	Updated Definition Of Master Meter Assembly (No Compound meters in favor of ultra sonic)

Authorization #7 - Amendments Effective August 4, 2016

10.4 Definitions	Section Name	Amendment Description
A-100:	Approved Cross Connection Control Assemblies	Included reference to Reduced Pressure Zone Assemblies (RPZs)

Authorization #8 - Amendments Effective November 5, 2017

10.4 Definitions	Section Name	Amendment Description
A-100:	Approved Cross Connection Control Assemblies	Remove reference to Reduced Pressure Zone Assemblies (RPZs)

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10.1 GENERAL

This MANUAL, which contains the PCU Cross Connection Control Policy, shall serve to insure that the safety of the PCU potable water systems is maintained.

A. The ENGINEER or CUSTOMER shall be required to review this MANUAL before designing a project or installing a cross connection control assembly,

B. PCU believes this MANUAL will provide the ENGINEER or CUSTOMER with the understanding of cross-connections and cross connection control assemblies,

C. PCU shall insure that the standards and specifications as set forth in this MANUAL will be uniformly enforced,

D. PCU reserves the right to update this MANUAL as necessary due to changes in FDEP policies and regulations and/or AWWA standards.

E. Though PCU presently utilizes PCU staff to perform testing and repairs, PCU reserves the right to institute at any time a cross connection control assembly testing program that either requires the CUSTOMER to select and pay for a PCU approved private contractor to perform testing and repairs or a PCU contracted testing service to test and repair all assemblies on a cost recovery basis from the CUSTOMER.

10.2 GOALS

A. Protection of the Public Water Supply System

To protect the public potable water supply from the possibility of contamination or pollution by isolating actual and/or potential cross-connections from the public potable water supply system that could create backflow by backpressure or back-siphonage (Rule 62-555 or latest edition, F.A.C.).

B. Elimination of Cross-Connections

To promote the elimination and control of cross-connections, actual or potential, between the public potable water system(s), and any other system(s) or plumbing fixture(s) in existing and future buildings and developments.

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C. Cross-Connection Control Program

To provide for the maintenance and operation of a continuing program of cross-connection control, which will systematically and effectively prevent the contamination or pollution of the public potable water supply system, as required by the FDEP (Rule 62-555 or latest edition, F.A.C.).

10.3 AUTHORITY

A. Federal

The United States Congress enacted the Safe Drinking Water Act (PL 93-532) into law on December 16, 1974. The purpose of the law is to assure that the nation's potable water supply systems meet minimum National Health Standards for the protection of public health.

In accordance with the Safe Drinking Water Act, the National Interim Primary Drinking Water Regulations were promulgated on December 24, 1975 and became effective on June 24, 1977. These regulations replaced the Public Heath Service Drinking Water Standard of 1962. It is stated in Appendix A of the rule that "minimum protection should include programs that result in prevention of health hazards, such as cross-connections."

The Safe Drinking Water Act and its regulations cover all public potable water systems with 15 or more service connections and systems that regularly serve 25 individuals. Under Section 1413 of the Safe Drinking Water Act, States may obtain primary enforcement responsibilities for their water quality program. However, the state's regulations must be equal to or exceed the federal regulations. The administrator of the EPA retains authority over states that do not obtain primacy.

B. State of Florida

The State was granted primacy over the water program under the authority of the "Florida Safe Drinking Water Act" Chapter 403-850-403.864 F.A.C. and Rule 17-22 “Public Drinking Water Systems”. The regulations went into effect in November of 1977. The State’s regulations were revised in November of 1987 to address the topic of cross-connection control and incorporated more specific language than that contained in the federal regulations. The State’s regulations (Rule 17-22, F.A.C.) were revised again, and renumbered in January of 1989 as Rules 17-555 and 17-560, F.A.C. In December of 1996, Florida revised and renumbered their regulations again to Rules 62-550 and 62-555, F.A.C., respectively.

Rule 62-550.200 (18), F.A.C. defines a cross-connection as "any

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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. Rule 62-555.360(1), F.A.C. states, "Cross-connection as defined in Rule 62-550.200, F.A.C. is prohibited."

Rule 62-555.360(2), F.A.C. states, "Community water systems shall establish a routine cross-connection control program to detect and prevent cross-connections that create or may create an imminent and substantial danger to the public health..."

The water purveyor is given the authority and responsibility to discontinue service to any CUSTOMER who refuses installation of a cross connection control assembly where an actual and/or a potential cross-connection may exist, (Rule 62-555.360(3), F.A.C.).

The authority to control and supervise the installation of approved cross connection control devices rests with the "supplier of water or his designated representative..." (Rule 62-555.360(4), F.A.C.).

C. Accepted Practices

The program shall utilize the accepted practices of the American Water Works Association guidelines as set forth in AWWA Policy M 14, entitled "Cross Connection Control" and Rule 62-555.330(6) and (7) F.A.C. or latest edition.

D. Objectives

A cross connection may result in the potable water system becoming a transmitter of diseases, and/or toxic materials and/or other hazardous liquids. Therefore, it is necessary to establish and maintain a cross-connection control program to protect the health of the PCU water system CUSTOMERS and/or users of the potable water system by the control of actual or potential cross-connections through methods of containment and/or isolation.

10.4 DEFINITIONS

A. Analogous Words and Terms

For the purpose of this MANUAL, the following analogous words and

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terms shall be interpreted to have similar meanings when not inconsistent with the context:

1. Words used in the singular number include the plural and words used in the plural number include the singular.

2. Words used in the present tense include the future tense.

3. The word "constructed" includes the word "erected," "built," "installed," "rebuilt", and "repaired".

4. The word "structure" includes the word "building".

5. The word "include" is a word of enlargement and not limitation.

6. The word "shall" is mandatory and the word "may" is permissive.

B. Abbreviations

1. Agencies:

AASHTO	American Association of State Highway and Transportation Officials
ANSI	American National Standards Institute
APWA	American Public Works Association
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing Materials
AWWA	American Water Works Association
DIPRA	Ductile Iron Pipe Research Association
EPA	United States Environmental Protection Agency
FCCCHR	Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California
FDOT	Florida Department of Transportation
FDEP	Florida Department of Environmental Protection
FDNR	Florida Department of Natural Resources

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FDOH	Florida Department of Health
FPSC	Florida Public Service Commission
HUD	Department of Housing and Urban Development (Federal and/or State)
LCDNR	Polk County Division of Natural Resources
LCDOT	Polk County Division of Transportation and Engineering
PCU	Polk County Utilities Department
NCPI	National Clay Pipe Institute
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration (Federal and/or State)
UL	Underwriters Laboratories
2.	General
DIP	Ductile Iron Pipe
fps	feet per second
F.A.C.	Florida Administrative Code
gpd	gallons per day
gpm	gallons per minute
HDPE	High Density Polyethylene
mgd	million gallons per day
p.s.i.	Pounds per Square Inch (gauge)
PVC	Polyvinyl Chloride

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ROW Right of Way

C. Definitions

Except where specific definitions are used within a specific section of this MANUAL for the purpose of such sections, the following terms, phrases, words, and their derivations shall have the meaning given when not inconsistent with the context.

AIR GAP SEPARATION: a physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An "approved air gap separation" shall be at least 2 times the diameter of the supply pipe measured vertically above the overflow rim of the vessel with a minimum separation distance of 3 inches.

APPROVED: reference an air-gap separation, a double check valve assembly, a reduced pressure principle cross connection control assembly, or other cross connection control assemblies or methods that meet the requirements of Rule 62-555.360(1) F. A. C.

ATMOSPHERIC VACUUM BREAKER (AVB): a cross connection control device that is operated by atmospheric pressure in combination with the force of gravity as defined by Rule 62-555 F.A.C. The unit shall be designed to work on a vertical plane only. The one moving part consists of a poppet valve that must be carefully sized to slide in a guided chamber and effectively shut off the reverse flow of water when a negative pressure exists. Use of this device shall be restricted to internal plumbing applications of structures and not used for containment purposes for the premises at the service connection. (ASSE 1001)

AUXILIARY WATER SUPPLY: any water supply on or available to the premises other than a PCU potable water supply. These auxiliary waters may include other potable water supplies, wells, ponds, pools, canals, retention areas, or any other natural or manmade water source.

BACKFLOW: the undesirable reversal of water flow or mixtures of water and other liquids, gases or other substances into the distribution pipes of the potable water system from any source or sources as defined by Rule 62-555 F.A.C.

BACK PRESSURE: any elevation of pressure in the downstream piping system (by pump, elevation of piping or by steam, and/or air pressure) above the supply pressure at the point of consideration that would cause or tend to cause a reversal of the normal direction of flow.

BACK SIPHONAGE: a form of backflow due to a reduction in system pressure, which causes a negative or sub-atmospheric pressure to exist

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at a site in water system that would cause or tend to cause a reversal of the normal direction of flow.

CROSS CONNECTION CONTROL ASSEMBLY: an assembly that has been manufactured in full conformance with AWWA Standards and meets the laboratory and field performance specifications of the FCCCHR. Cross Connection Control Assemblies shall also comply with the requirements of Rule 62-555 F.A.C.

CROSS CONNECTION CONTROL ASSEMBLY (TYPE): an effective assembly used to prevent backflow into a potable water system. The type of assembly used should be based on the degree of hazard either existing or potential. The types approved for use by PCU CUSTOMERS for non-internal usage are:

Double Check Valve Assembly
Double Check Detector Assembly
Reduced Pressure Principle Assembly
Reduced Pressure Detector Assembly

or other assemblies approved by the PCU.

CERTIFIED CROSS CONNECTION CONTROL ASSEMBLY TESTER: (also known as a Certified Backflow Prevention Device Tester) a person who can provide documentation proving competency in testing cross connection control assemblies to the satisfaction of PCU. The TESTER shall have attended and successfully completed an AWWA approved course for Cross Connection Control Assembly Testers, or a course endorsed by the AWWA, or other programs or training acceptable to PCU and FDEP. All TESTERS wishing to do business within a PCU service area must attend a mandatory orientation class conducted by PCU staff prior to being placed on the Approved Certified Cross Connection Control Testers List.

CERTIFIED CROSS CONNECTION CONTROL ASSEMBLY REPAIRER: (also known as a Certified Backflow Prevention Assembly Repairer) a person who can provide documentation proving competency in repairing cross connection control assemblies to the satisfaction of the PCU. The REPAIRER shall have attended and successfully completed an AWWA approved course for cross connection control assembly repairers, or a course endorsed by the AWWA, or other programs or training acceptable to the PCU and FDEP. All REPAIRERS wishing to do business within a PCU Service Area must attend a mandatory orientation class conducted by PCU staff prior to being placed on the Approved Certified Cross Connection Control Assembly Repairers List.

CERTIFIED TEST GAUGES: calibrated and certified annually, proof of which shall be required, to FCCCHR Standards by a testing lab

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approved by PCU.

CHECK VALVE: a valve that is drip-tight in the normal direction of flow when the inlet pressure is at least 1 p.s.i. and the outlet pressure is 0 p.s.i. The check valve shall permit no leakage in a direction reverse to the normal flow. The closure element (e.g. clapper, poppet, or other design) shall be internally loaded to promote rapid and positive closure. An approved check valve is only one component of an approved cross connection control assembly, i.e., pressure vacuum breaker, double check valve assembly, or reduced pressure principle assembly.

CONTAMINATION: the impairment of the water quality that creates an actual hazard to the public health through poisoning or through the spread of disease or illness by sewage, industrial fluids, or any other means.

CROSS-CONNECTION: a connection or potential connection between any part of a potable water system and any other environment containing other substances in a manner that, under any circumstances would allow such substances to enter the potable water system. Other substances may be gases, liquids, or solids, such as chemicals, waste products, steam, water from other sources (potable or non-potable), or any matter that may change the color or add odor to the water.

CROSS CONNECTIONS-CONTROLLED: a connection between a potable water system and a non-potable water system with an approved backflow-prevention assembly properly installed and maintained so that it will continuously afford the protection commensurate with the degree of hazard.

CROSS-CONNECTION CONTROL BY CONTAINMENT: the installation of an approved backflow-prevention assembly at the water service connection to any CUSTOMER's premises, where it is physically and economically unfeasible 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 assembly on the service line leading to and supplying a portion of a CUSTOMER's water system where there are actual or potential cross-connections that cannot be effectively eliminated or controlled at the point of the cross-connection.

CUSTOMER: shall mean the owner or operator of a private plumbing and/or water system who receives water from a PCU potable water system.

DIRECTOR: the person who is responsible for the day to day administration and management of Polk County Utilities.

DOUBLE CHECK DETECTOR ASSEMBLY (DCDA): a specifically

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designed assembly composed of an approved double check valve assembly with a specific bypass water meter and an approved double check valve assembly all properly sized. The meter shall register accurately for low flow rates and shall total all flows. The valves are located between two tightly closing resilient-seated shutoff valves as an assembly and equipped with properly located resilient-seated test cocks. This assembly shall be used to protect against a non-health hazard (pollutant) and uses subject to low water flows such as fire protection systems. (ASSE 1015)

DOUBLE CHECK VALVE ASSEMBLY (DCVA): an assembly consisting of two internally loaded check valves, either spring loaded or internally weighted installed as a unit between two tightly closing resilient-seated shutoff valves and fittings with properly located resilient-seated test cocks. This assembly shall be used to protect against a non-health hazard (pollutant) and uses not subject to low water flows. (ASSE 1015)

DUAL CHECK VALVE DEVICE (DuC): a mechanical device consisting of two independently acting spring-loaded check valves, does not normally include shutoff valves, and may or may not be equipped with test cocks or ports. Though this device is effective against backpressure backflow and backsiphonage, it should only be used to isolate non-health hazards. This device is only intended for use on potable water service connections to single-family homes.

FIRE SUPPRESSION SYSTEM: any system, public or private, used exclusively for the purpose of having water ready for the extinguishing of fire, usually sprinkler systems, hose rack systems, or hydrant systems, metered and unmetered, connected or independent of the waterworks system.

HAZARD (DEGREE): derived from the evaluation of conditions within a system, which can be classified either as “pollution” (non-health) or "contamination" (health) hazard.

HAZARD (HEALTH): an actual or potential threat of contamination to the public potable water system or the CUSTOMER's potable plumbing and/or water system.

HAZARD (PLUMBING): an internal cross-connection in a CUSTOMER's potable water system that may be either a pollution or a contamination type hazard. This includes but is not limited to cross-connections with toilets, sinks, lavatories, wash trays, domestic washing machines and lawn sprinkling systems. Plumbing type cross-connections can be located in homes, apartment houses, hotels, commercial and industrial establishments, and other structures. An appropriate type of cross connection control assembly must properly protect all structures.

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HAZARD (POLLUTION): an actual or potential threat to the physical properties of the potable water system or the potability of the public or the CUSTOMER's potable water system, but not constituting a health system hazard. This type of hazard results in the degradation of the potable water system to levels that can be aesthetically objectionable or could cause minor damage to the system or its appurtenances.

HEALTH AGENCY: the FDOH or FDEP, depending upon jurisdiction.

HOSE BIB VACUUM BREAKER (HBVB): any approved cross connection control device that consists of a spring loaded check valve that allows the device to vent to the atmosphere when the water is turned off. Use of this device shall be restricted to hose bib plumbing applications at or within structures as maybe required by the Florida Plumbing Code and not used for containment purposes of the premises at the service connection. (ASSE 1011)

INDUSTRIAL FLUIDS: any fluid or solution that may physically, chemically, biologically or otherwise contaminate or pollute potable water if introduced into the potable water system or CUSTOMER plumbing system or potable water system. Industrial fluids may include, but not be limited to polluted or contaminated water; all types of process waters and "used waters" originating from the public potable water system which may deteriorate in sanitary quality; chemicals in fluid form; plating acids and alkalis; circulated cooling water connected to an open cooling tower and/or cooling waters that are chemically or biologically treated or stabilized with toxic substances; contaminated natural water such as from wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems, etc., oil, gases, glycerin, paraffins, caustic and acid solutions; and other liquid and gaseous fluids used in commercial/industrial type processes or for fire fighting purposes.

INDUSTRIAL PIPING SYSTEM (CUSTOMER'S): any system used by the CUSTOMER for transmission, confinement or storage of any liquid, solid or gaseous substance other than an approved potable water supply. An industrial piping system includes all pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances used to produce, convey or store substances that can pollute or contaminate potable water.

INTERNAL USE: the utilization of a device or devices within any premises on the CUSTOMER’s side of a water supply meter and/or master meter assembly and beyond the primary Cross Connection Control Device that protects the public water supply.

LABORATORY (APPROVED FOR TESTING): the FCCCHR or other testing laboratory approved by PCU.

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MANUAL: the most recent edition of the Cross Connection Control Policy Manual of Polk County, Florida.

MASTER METER ASSEMBLY: a meter and cross connection control assembly combination that serves two or more entities on a single non-single family or non-duplex residential premise, such as shopping centers, schools, office complexes, and multi-family developments. The assembly shall be used to provide potable water for either domestic use only or combined domestic and fire suppression use applications. The meter shall be an ultra-sonic type for domestic uses and a fire-line type for combined uses. The cross connection control assembly shall be a reduced pressure principle assembly type in all situations.

OWNER: the legally recognized owner, or authorized representative, of real property within Polk County.

PLUMBING OFFICIAL: the Polk County Building Official.

PLUMBING SYSTEM: the water supply and distribution pipes, plumbing fixtures and traps, soil, waste and vent pipes, building drains and sewers, including their respective connections, devices and appurtenances within the property line of the premises, and water-treating or water-using equipment.

POLK COUNTY UTILITIES (PCU): the Polk County entity that has the responsibility of administering, operating, and maintaining the Polk County potable water, wastewater, and reclaimed water utility systems.

POLLUTION: an impairment of the quality of potable water to a degree that does not create a hazard to public health, but does adversely and unreasonably affect the aesthetic qualities of such waters for domestic use.

PRESSURE VACUUM BREAKER ASSEMBLY (PVB): an assembly containing an independently operating internally loaded check valve and an independently operating loaded air inlet valve located on the discharge side of the check valve, with properly located resilient-seated test cocks and tightly closing resilient-seated shutoff valves attached at each end of the assembly. This assembly is designed to protect against a health hazard (contaminant) under a backsiphonage condition only and should not be used if backpressure could develop in the downstream piping. This assembly is designed to be used typically on irrigation systems not utilizing an auxiliary water source and not having elevated sprinkler heads. This assembly shall not be used within a PCU service area and shall be substituted with a Reduced Pressure Principle Assembly. (ASSE 1020)

RECLAIMED WATER (commonly referred to as Reuse Water and Effluent Reuse): the treated and disinfected effluent from a wastewater

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treatment plant used for irrigation, dust control, and all other purposes permitted by the F.A.C.

REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA): an assembly containing two independently acting approved check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves with a specific bypass water meter and an approved double check valve assembly all properly sized. The meter shall register accurately for low flow rates and shall total all flows. These units are located between two tightly closing resilient-seated shutoff valves as an assembly and equipped with properly located resilient-seated test cocks. This assembly shall be designed to protect against a health hazard (contaminant) and uses subject to low water flows. (ASSE 1013)

REDUCED PRESSURE PRINCIPLE ASSEMBLY (RPPA): an assembly containing two independently acting approved check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves. These units are located between two tightly closing resilient-seated shutoff valves as an assembly and equipped with properly located resilient-seated test cocks. This assembly shall be designed to protect against a health hazard (contaminant) and uses not subject to low water flows. (ASSE 1013)

REFERENCE MANUAL 6(A): the Polk County Utilities Administration Manual, adopted by reference herein.

REFERENCE MANUAL 6(B): the Polk County Utilities Standards and Specifications Manual, adopted by reference herein.

REFERENCE MANUAL 6(C): this Manual, the Polk County Utilities Cross-Connection Control Policy Manual, adopted by reference herein.

REFERENCE MANUAL 6(D): the Polk County Utilities Reclaimed Water Policy Manual, adopted by reference herein.

REFERENCE MANUAL 6(E): the Polk County Industrial Wastewater Pre-Treatment Policy Manual, adopted by reference herein.

REFERENCE MANUAL 6(F): the Polk County Utilities Water Conservation Policy Manual, adopted by reference herein.

REFERENCE MANUAL 6(G): the Polk County Utilities Fats, Oils, and Grease Policy Manual, adopted by reference herein.

SERVICE CONNECTION: the terminal end of a service connection from the public potable water system, i.e., where the water purveyor may lose jurisdiction and sanitary control over the water at its point of delivery to

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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.

WATER (POTABLE): any water, which according to recognized standards is safe for human consumption.

WATER PURVEYOR: the public or private owner or operator of the potable water system supplying an approved water supply to the public.

WATER SUPPLY (APPROVED): any public potable water supply that has been investigated and approved by FDEP. The system must be operating under a valid permit.

WATER SUPPLY (AUXILIARY): any water supply available to the premises other than the purveyor's approved public potable water supply. Auxiliary water supplies include water from another purveyor's potable water supply; other water sources such as a well, spring, river, stream, harbor, reclaimed water, industrial fluids, or any other type of water supply not controlled by the primary water purveyor.

WATER SUPPLY (UNAPPROVED): a water supply that has not been approved for human consumption by FDEP and/or is not operating under a valid permit.

WATER SYSTEM(S) (CUSTOMER'S): any plumbing and/or water system located on the CUSTOMER's premises whether supplied by a public potable water system or an auxiliary water supply. The system or systems may be either a potable water system or an industrial piping system.

WATER SYSTEM(S) (CUSTOMER'S POTABLE): that portion of a privately owned potable plumbing and/or water system between the point of potable water delivery by the water purveyor and the CUSTOMER's point of use. This system will include all pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances used to produce, convey, store, or use the potable water.

WATER SYSTEM (PUBLIC): the PCU water supply system operated as a public water system under a valid permit from FDEP and other applicable regulatory agencies to supply potable water for domestic purposes. This system will include all sources, facilities, and appurtenances between the source and the point of delivery such as valves, pumps, pipes, conduits, tanks, receptacles, fixtures, equipment, and appurtenances use to produce, convey, treat, or store potable water for public consumption or use.

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10.5 RECORDS, ENFORCEMENT, AND INSPECTIONS

A. Responsibility of PCU

PCU is primarily responsible for the prevention of contamination and pollution of the public water mains. Such responsibility begins at the point of origin of the public water supply and includes adequate treatment facilities and water mains, and ends at the point of entrance to the CUSTOMER's water system, provided adequate backflow and back-siphonage protection is maintained on all water supply systems directly connected to the water purveyor's public system.

PCU is responsible for the protection of the potable water distribution system from contamination or pollution due to the backflow of contaminants or pollutants through any and all water service connections. It shall be the goal of PCU to require an approved cross connection control assembly installation at the premises of all CUSTOMERS, unless otherwise exempted in this MANUAL. PCU shall require that each existing and future CUSTOMER, as specified below, have an approved cross connection control assembly installed in accordance with this MANUAL. The size of the assembly or device installed shall not be less than the size of the meter currently being used.

PCU shall designate the location of all cross connection control assemblies. Though the assembly shall typically be within 1 foot of the CUSTOMER's side of the water meter, or as otherwise approved by PCU, assemblies shall always be located on the premise of the CUSTOMER. When the location of an assembly requires that it be placed inside of a building or similar structure and is approved by specifically approved by PCU, an aluminum sign as detailed in the "Utilities Standards and Specifications Manual" and measuring 12 inches high by 18 inches long, shall be bolted to the wall a minimum of 24 inches above the point where the potable water service or fire line enters the building. The sign shall have a white background with black lettering stating "Cross Connection Control Device Located Inside".

Representatives of PCU, bearing proper credentials and identification, shall be permitted to enter upon all properties for the purpose of sampling and testing of the water, or make inspections and observations of the connections to the public water supply system. Refusal to allow inspection of any water using equipment, plumbing or other cross connections shall cause PCU to discontinue water service and constitute a violation of this MANUAL.

Cross connection control will be especially required for single-family and duplex residential CUSTOMERS when there is an auxiliary water supply, swimming pool on site, or when a cross connection or potential for a

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cross connection is found. This does not limit the authority of PCU to inspect single-family residential properties for the purpose of protecting the public water system.

In order to determine the degree of hazard to the public potable water system, Section 10.6 B below shall be used to determine the required assembly type that needs to be installed. As an alternative to the list, a survey may be made of the CUSTOMER's premises by PCU to determine the type of assembly needed. The survey need not be a detailed inspection of the location or disposition of the water lines, but can be confined to establishing the water uses on the premises, the existence of cross connections, and the availability of auxiliary or non-potable water supplies. Site inspections may be performed when deemed necessary by PCU to ensure compliance with this MANUAL.

B. New Construction

During the development review process, the ENGINEER shall utilize this MANUAL to determine the CUSTOMER's responsibilities concerning the installation of cross connection control assemblies.

C. New Accounts on Existing Facilities

Upon application for water service by the CUSTOMER, and where determined necessary by PCU in accordance with this MANUAL, the CUSTOMER shall have a maximum of 90 calendar days from the date of application to have a cross connection control assembly or assemblies installed.

D. Retrofitting Facilities of Existing CUSTOMERS

All existing CUSTOMERS, unless otherwise exempted by this MANUAL, shall install the appropriate assembly within 180 calendar days of being notified by PCU whenever a change occurs to the CUSTOMER's property that requires the installation of an assembly in accordance with this MANUAL. The CUSTOMER shall be notified as stated below.

Any existing assembly that has been correctly installed, regularly tested, and continues to function properly will be allowed to continue in service unless the degree of hazard is such as to supersede its effectiveness or results in an unreasonable risk to public health, as determined by PCU. In such a case, the CUSTOMER shall replace or upgrade the assembly to the current standards of PCU.

E. Responsibility of the CUSTOMER

The CUSTOMER has the primary responsibility of preventing

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contaminants and pollutants from entering his water supply system, and from entering the public water main or water source from his water supply system. The CUSTOMER shall protect his water supply system against actual or potential cross-connection, backflow, or back-siphonage, as required by this MANUAL, and other applicable regulations. Unless PCU provides testing and maintenance services, the CUSTOMER shall assure that all assemblies are tested and maintained in the working condition required. The CUSTOMER shall assure that all necessary permits are obtained for new water supply system installations and for alterations or repair to existing systems.

F. Records

Records concerning the installation and testing of an assembly shall be kept on-site by the CUSTOMER and accessible for review for a period of not less than 10 years. PCU shall be permitted reasonable access to these records during normal business hours, as required, for the purpose of monitoring compliance with this MANUAL. PCU shall maintain copies of all test reports, repair summaries, or other communications relating to this cross-connection control program for a period of not less than 10 calendar years in accordance with Rule 62-555, F.A.C.

G. Written Notice

PCU shall issue a written notice by certified mail when an approved cross connection control assembly or device is required at a CUSTOMER's water connection. Upon receipt of such written notice, the CUSTOMER shall install or have installed an approved cross connection control assembly or device at the sole expense of the CUSTOMER within the specified time from the date of CUSTOMER’s receipt of the notification.

H. Violations

Failure, refusal, or inability on the part of the CUSTOMER to install an assembly or device shall constitute grounds for refusal of water or fire service or the discontinuance of service to the premises until such an assembly or device has been properly installed.

Submission by any person of any false statement or misrepresentation in any application, record, report, plan, or other document required by this MANUAL shall constitute a violation of the conditions for water service. Any person who has not complied with Federal, State, and Local Laws or Ordinances, and this MANUAL regarding cross-connection control shall be considered in violation of the conditions for water service by

CROSS CONNECTION CONTROL POLICY MANUAL

PCU.

I. Enforcement Policy

No water service connection to any premises shall be installed or maintained by PCU unless the water supply is, or has received official development plan approval to be, protected as required by Federal, State, and Local Laws or Ordinances, and this MANUAL.

Water service to a CUSTOMER shall be discontinued by PCU if a cross connection control assembly required by this MANUAL is not installed, tested, and maintained, or if it is found that a cross connection control assembly has been removed, by-passed, or an unprotected cross-connection exists on the premises. Water service shall not be restored until such conditions or defects are corrected at the CUSTOMER's expense. Other methods of enforcement shall be used as appropriate, including, but not limited to, the County's Code Enforcement Procedures.

CERTIFIED TESTERS and REPAIRERS shall be removed from their applicable lists for a minimum period of 1 year upon the third documented violation of this MANUAL and related requirements. All notifications of violation and suspension to each TESTER or REPAIRER generated by PCU shall be by certified mail.

J. Frequency of Testing

Due to changes in models or components of equipment, methods of manufacturing, and additions to plants, buildings, etc., water use requirements undergo continual change. As new cross connections may be installed and existing protection may be bypassed, removed, or otherwise ineffective, an annual or biennial detailed inspection of all water usage is required. Unless PCU provides testing and maintenance services, all assemblies shall be tested by and at the expense of the CUSTOMER on an annual basis unless circumstances require a more frequent testing schedule, at a minimum.

K. Costs

All costs related to the disconnection or re-connection of water service, installation, maintenance, and/or testing of a device shall be the responsibility of CUSTOMER.

L. Auxiliary Water Supply

The public water system shall be protected against backflow and back-siphonage by the installation of an approved cross connection control assembly if an auxiliary water supply is found on the CUSTOMER's

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premises that may or may not be safe in bacteriological or chemical quality.

M. Industrial Fluids

If any industrial fluids or any other objectionable substances are handled in such a fashion as to create an actual or potential hazard to the public water system, the public water system shall be protected against backflow and back-siphonage. This protection shall include the installation of a cross connection control assembly in the service line. The type of cross connection control assembly installed shall be appropriate for the potential degree of hazard.

N. Internal Cross-Connections

If an internal cross-connection(s), undefined plumbing arrangement(s) exists, or if entry to all or portions of the premises is not readily accessible for inspection purposes, the public water supply system shall be protected against backflow and back-siphonage by the installation of a master meter assembly composed of an appropriate potable water meter and a cross connection control device at the point where the service line enters the subject premises.

PCU shall have the authority to require cross connection control assemblies in order to separate potential internal cross connections sources from any internal potable water supply source that the general public may use.

O. Reclaimed Water

Any property that is served by a PCU potable water system and also utilizes reclaimed water shall utilize a Cross Connection Control Assembly at the CUSTOMER's potable water service connection in accordance with this MANUAL.

All premises utilizing reclaimed water shall be required to provide PCU approved public notice signs at all entrances identifying the area as a reclaimed water use area. Non-irrigation users of reclaimed water shall provide similar notification signage at the point of reclaimed water use. All signage shall comply with the "Utilities Standards and Specifications Manual".

10.6 DEGREE OF HAZARD AND TYPE OF PROTECTION

A. Degree of Hazard

The type of cross connection control assembly required shall depend

CROSS CONNECTION CONTROL POLICY MANUAL

upon the degree of hazard. The use of a detector meter as part of the assembly shall be required for all cross connection control assemblies of 2½ inches and above in size on any potable water service that is not metered.

1. Non-Potable Water Supply

   When an auxiliary water supply is present, the public water system shall be protected by an approved air-gap separation device or an approved reduced pressure principle assembly.

2. Objectionable, but Not Hazardous

   When water or a substance(s) is present that would be objectionable if introduced into the potable water system but not hazardous to public health, the public water system shall be protected by an approved double check valve assembly.

3. Actual or Potential Hazard

   Any material dangerous to health that is handled in such a fashion as to create an actual or potential hazard to the potable water system, the potable water system shall be protected by an approved air-gap separation device or an approved reduced pressure principle assembly.

B. Level of Protection

All controlled and uncontrolled cross-connections, either actual or potential, to the potable water system shall be protected by an approved air-gap separation or an approved cross connection control assembly. In the event of a conflict regarding the level of protection needed, the most protective assembly or device shall be utilized.

"DCVA" indicates an approved double check valve assembly. "RPPA" indicates an approved reduced pressure principle assembly. Detector type assemblies (DCDA and RPDA) shall be utilized when a connection to a potable water main is not metered such as in the case of a fire line service, private fire hydrant, other fire suppression type installations, etc. NOTE: If approved by PCU, a physical air-gap separation may take the place of a device.

Type of Facility	Minimum Protection
Aircraft and Missile Storage/ Manufacturing Facility	RPPA

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Type of Facility	Minimum Protection
Automotive Repair or Manufacturing Facility	RPPA
Automotive Parts Stores (No Onsite Repairs)	DCVA
Automotive, Truck, and Boat Sales Businesses	RPPA
Auxiliary Water Systems	RPPA
Bakeries	RPPA
Barber Shops, Beauty Salons, Health Clubs, and Health Spas	RPPA
Beverage Bottling Facilities	RPPA
Breweries and Distilleries	RPPA
Canneries	RPPA
Car Wash Facilities	RPPA
Chemical Processing Storage or Manufacturing Facilities	RPPA
Chemical or Biological Testing Labs	RPPA
Chemically Contaminated Water Systems	RPPA
Cold Storage Facilities	DCVA
Commercial Rental Units (where use may vary w/ tenant)	RPPA
Convenient Stores	RPPA
Dairies and Dairy Products Processing Facilities	RPPA
Day Care Facilities (Children and Adult)	RPPA
Dental Offices and Laboratories	RPPA
Department Stores (No repairs or chemical storage)	DCVA
Department Stores (With repair facilities or chemical storage)	RPPA
Dry Cleaning and Laundry Facilities	RPPA
Electrical Transmission or Generating Facilities	RPPA
Fertilizer Storage and Manufacturing Facilities	RPPA
Film Processing Facilities	RPPA
Fire Protection Systems (No Additives)	DCDA

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Type of Facility	Minimum Protection
Fire Protection Systems (With Additives)	RPDA
Food Processing Facilities	RPPA
Government Facilities	
A.) Contamination Hazard	RPPA
Government Facilities	
B.) Pollution Hazard	DCVA
Hardware or Lumber Supply Stores	RPPA
Hospitals	RPPA
Hotels and Motels (Single Story Only)	DCVA
Hotels and Motels (Multi-Story)	RPPA
Ice Manufacturing Facilities	RPPA
Irrigation Systems	RPPA
Laboratories	RPPA
Laundries and Dye Works	RPPA
Machine Tool Manufacturing Facilities	RPPA
Manufacturing Facilities (non-toxic substances on-site)	DCVA
Manufacturing Facilities (toxic substances on-site)	RPPA
Marinas and Boat Docks	RPPA
Master Metered Premises	RPPA
Medical Facilities	RPPA
Medical Clinics	RPPA
Metal Manufacturing, Cleaning, and Fabricating Facilities	RPPA
Morgues or Mortuaries	RPPA
Motion Pictures Studios	RPPA
Multi-Family Structures with 3 Units or More on One Meter	RPPA
Multiple Services that are Interconnected	RPPA

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Type of Facility	Minimum Protection
Multi Story Buildings (Multi-Family or Commercial)	RPPA
Nursing Homes and Rehabilitation Facilities	RPPA
Office Buildings (Single Story Only)	DCVA
Office Buildings (Multi-Story)	RPPA
Office Units (Single Story Only)	DCVA
Oil and Gas Production or Storage Facilities	RPPA
Packing Houses or Rendering Facilities	RPPA
Paper and Paper Products Facilities	RPPA
Pest Exterminating Businesses	RPPA
Pharmaceutical of Cosmetic Facilities	RPPA
Photo Processing Facilities	RPPA
Photograph Studios	RPPA
Plastic Injection and Molding Facilities	RPPA
Plating Facilities	RPPA
Ponds or Similar Appurtenances	RPPA
Power Plants	RPPA
Premises where Inspections are Restricted	RPPA
Premises with Boilers	RPPA
Premises having a Water Storage Tank or Reservoir	RPPA
Reclaim Water Usage at Single Family Resid. Premises	RPPA
Reclaim Water Usage at all other Premises	RPPA
Restaurants and other Food Preparation Establishments	RPPA
Restricted, Classified, or Closed Facilities	RPPA
Retail Businesses (Single Story Only)	DCVA
Retail Businesses (Multi-Story)	RPPA
Rubber Processing Plants, Natural or Synthetic	RPPA

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Type of Facility	Minimum Protection
Sand and Gravel Processing Facilities	RPPA
Schools and Colleges	RPPA
Sewage and Stormwater Collection and Pumping Facilities	RPPA
Solar Heating Systems	RPPA
Strip Malls and Centers	RPPA
Super Markets and Grocery Stores	RPPA
Swimming Pools and Club Houses	RPPA
Veterinary Establishments	RPPA
Warehouse and Storage Facilities	RPPA
Waterfront Facilities and Industries	RPPA

C. Fire Protection Systems

All fire protection system service lines shall have an approved double check detector assembly installed on the premises prior to the connection point with the potable water system. Mains specifically for private fire hydrants shall have an approved double check detector assembly installed on the premises prior to the connection point with a PCU potable water system. A fire protection system, which incorporates chemical additives, shall have an approved reduced pressure detector assembly installed on the premises prior to the connection point with the potable water system.

D. Assessment of Health Hazard

NOTE: H = Health Hazard, NH = Non-Health Hazard

Description of Cross Connection	Assessment of Hazard
Aspirator	H
Bedpan Washers	H
Autoclaves	H
Specimen Tanks	H
Sterilizers	H
Cuspidors	H
Lab Bench Equipment	H

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Description of Cross Connection	Assessment of Hazard
Autopsy and Mortuary Equip.	H
Sewage Pumps	H
Sewage Ejectors	H
Fire-fighting Systems w/ Toxic Liquid Foam Concentrates	H
Connection to Sewer Pipes	H
Connection to Plating Tanks	H
Connection to Salt Water Cooling Systems	H
Tank Vats or other Vessels Containing Toxic Substance	H
Dye Vats or Machines	H
Cooling Towers w/ Chemical Additives	H
Trap Primers	H
Steam Generators	NH
Heating Equipment Commercial	NH
Heating Equipment Domestic	NH
Irrigation Systems	H
Irrigation Systems w/ Chemical Additives or Agents	H
Swimming Pools Public	NH
Swimming Pools Private	NH
Vending Machines	NH
Ornamental Fountains	NH
Degreasing Equipment	NH
Lab Bench Equipment	NH
Hose Bibs	NH
Trap Primers	NH

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Description of Cross Connection	Assessment of Hazard
Flexible Shower Heads	NH
Steam Tables	NH
Washing Equipment	NH
Shampoo Basins	NH
Kitchen Equipment	NH
Aspirators	NH
Domestic Space-Heating Boiler	NH

10.7 PREMISES WITH RESTRICTED ACCESS

Any premises where security requirements or other prohibitions or restrictions exist and it is impossible or impractical to make a complete in-plant cross-connection survey, the potable water system shall be protected against backflow or back-siphonage by the installation of an approved cross connection control assembly. Maximum protection will be required for restrictive premises. An approved air-gap separation or an approved reduced pressure principle cross connection control assembly shall be installed in each service to these premises.

10.8 APPROVAL, TESTING, AND REPAIRS

A. Approved Assemblies

A List of Approved Cross Connection Control Assemblies shall be maintained by PCU and provided upon request to any interested parties. Assemblies and devices that are considered not to be easily maintained and repairable in the opinion of PCU shall not be considered for approval.

An approved cross connection control assembly shall be both manufactured in full conformance with the standards established by the AWWA entitled: AWWA C505-69 “Standards for Reduced Pressure Principle and Double Check Valve Assemblies”, or later adopted version and conform with the laboratory and field performance specifications of the FCCCHR. All assemblies and devices must comply with both of the above standards, not one or the other.

All approved cross connection control assemblies shall also be in compliance with the standards set forth by the following agencies:

FDEP - Rule 62-555.360 and 62-555.335 F.A.C.

ASSE

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Florida Plumbing Code

B. Testing

In the event that PCU elects not to provide testing and maintenance services, it shall be the duty of the CUSTOMER at any premise where cross connection control assemblies are installed to have certified inspections and operational tests made at least once per year. The CUSTOMER will be notified by mail approximately 30 calendar days in advance of the required testing due date. In those instances where PCU deems the hazard to be exceptional, additional certified inspections may be required at more frequent intervals. These inspections and tests shall be at the expense of the CUSTOMER and shall be performed by a CERTIFIED TESTER, pre-approved by PCU, using certified test gauges. A List of Certified TESTERS and REPAIRERS shall be maintained by PCU and made available to the general public. In addition to the submittal of proof of certification in the appropriate area of specialization from a PCU approved agency located within the State, all CERTIFIED TESTERS and REPAIRERS shall attend an Orientation Class conducted by PCU prior to having their names placed on the above mentioned List and conducting business as a CERTIFIED TESTER or REPAIRER within a PCU service area.

Before each field test the CERTIFIED TESTER shall take the following steps:

1. Notify the CUSTOMER that the water service will need to be shut-off during the test. If a fire protection system will be affected, PCU and the Fire Department shall also be notified. Testing shall be coordinated with the CUSTOMER.

2. Identify that the proper assembly is being tested by checking the identification tag and meter number.

3. Inspect the assembly for minimum clearances and properly located shut off valves and test cocks.

4. Observe the assembly and surroundings for signs of leakage, vandalism, or alterations.

After each field test the CERTIFIED TESTER shall supply the owner and PCU with a copy of the County approved Test and Maintenance Report within 7 calendar days, or a retest will be required.

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1. Test Requirements for RPPA's and RPDA's

   Test 1. The operation of the pressure differential relief valve shall maintain a zone between the two check valves at least 2 psi less than the supply pressure.

   Test 2. The number 2 shut-off valve shall close fully and be leak tight against backpressure and back siphonage.

   Test 3. The number 2 check valve shall maintain a static pressure drop across the check valve of at least 1 psi in the direction of flow. The check valve shall permit no leakage in a direction reverse to the normal flow.

   Test 4. The number 1 check valve shall maintain a pressure of at least 5 psi and have a higher differential value than the relief valve. The check valve shall permit no leakage in a direction reverse to the normal flow.

2. Test Requirements for DCVA's and DCDA's

   Test 1. The number 1 and number 2 shut off valves shall close fully and be leak tight.

   Test 2. The number 1 check valve shall maintain a static pressure drop across the check valve of at least 1 psi in the direction of flow. The check valve shall permit no leakage in a direction reverse to the normal flow.

   Test 3. The number 2 check valve shall maintain a static pressure drop across the check valve of at least 1 psi in the direction of flow. The check valve shall permit no leakage in a direction reverse to the normal flow.

   Testing double check valve assemblies with limited access installations may require the down stream reference point being raised with a sight tube to an elevation level with the test gauge.

C. Repairs

In the event that PCU elects not to provide testing and maintenance services, it shall be the duty of the CUSTOMER to conform to scheduled testing. If deficiencies are noted during the test, such assemblies shall be repaired, overhauled, or replaced at the expense of the CUSTOMER

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by a Certified Cross Connection Control Assembly REPAIRER pre-approved by PCU. If an existing assembly needs to be repaired or overhauled, only original manufacturer parts shall be used.

If an existing assembly needs to be taken out of line for repairs, the assembly and installation shall meet all current policies, standards, and specifications as set forth in this MANUAL, before it is put back into service.

If an existing assembly or device needs to be replaced, the CUSTOMER shall contact PCU before any work is done. At this time the assembly or device with its associated piping, valves, and fittings shall be brought up to current standards and specifications. The TESTER and REPAIRER shall furnish records of such tests, repairs, and overhauls to PCU and CUSTOMER. Upon completion of any repair, over haul, or replacement of an assembly or device, an operational test shall be made before the system is put back into service.

10.9 INSTALLATION

All cross connection control assemblies shall be installed in strict accordance with the manufacturer's installation instructions, the Utilities Standards and Specifications Manual, and the following guidelines. All cross connection control assemblies shall be installed by the CUSTOMER or a plumbing contractor authorized to do business within Polk County. All required permits shall be obtained prior to the start of any installation. The installation of assemblies and devices over 2½ inches in diameter shall require a pre-construction conference with PCU. The installation of all assemblies shall comply with this MANUAL, which depicts the installation of specific cross connection control assemblies. Due to the inherit water pressure loss across an Assembly, the maximum design water pressure for all proposed developments requiring the installation of a cross connection control device shall be based on a maximum incoming residual pressure of 40 p.s.i. on the CUSTOMER’s side of the Assembly. If actual operational higher pressures are required by the CUSTOMER for whatever reason, then the CUSTOMER shall install pressure booster pumps at the CUSTOMER’s expense. In addition, all installations shall conform to the following minimum requirements:

A. Location

PCU shall designate the location of all cross connection control assemblies. Though the assembly shall typically be within 1 foot of the CUSTOMER’s side of the water meter, or as otherwise approved by PCU, assemblies shall always be located on the premise of the CUSTOMER. When the location of an assembly requires that it be placed inside of a building or similar structure and is specifically

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approved by PCU, an aluminum sign approved by PCU and measuring 12 inches high by 18 inches long, shall be bolted to the wall a minimum of 24 inches above the point where the potable water service or fire line enters the building. The sign shall have a white background with black lettering stating “Cross Connection Control Assembly Located Inside”. All assemblies that are subject to potential contact with vehicular traffic shall be protected by the installation of bollards constructed and installed in accordance with this MANUAL.

B. Support

All assemblies and devices shall be adequately supported to prevent the assembly from sagging.

C. Flushing

Pipelines shall be thoroughly flushed to remove foreign material and debris before installing the assembly.

D. Reduced Pressure Principle Assembly

The RPPA (or RPDA) shall be installed in a horizontal position unless otherwise recommended by this MANUAL or approved by PCU. The Assembly shall not be installed in a pit. If installed in an enclosure, the enclosure shall be provided with an adequate gravity drain to a positive outfall and an air gap between the relief valve port on the Assembly and the positive outfall drain or the maximum flood level in the enclosure, whichever is highest. If the Assembly is installed inside a building, an adequate drain shall be provided and there shall be an air gap between the relief valve port on the Assembly and the drain or the maximum flood level in the building, whichever is higher. To facilitate testing and maintenance, the bottom of the Assembly, 2 inches and smaller in diameter, shall be located a minimum of 12 inches and a maximum of 18 inches above the ground or floor. Assemblies measuring 2½ inches and larger in diameter shall not be less than 18 inches or more than 36 inches above the ground or floor. The side of the Assembly with the test cocks shall be located a minimum of 24 inches from the nearest fixed wall or obstruction. All other sides of the Assembly shall be located a minimum of 12 inches from the nearest fixed wall or obstruction.

E. Double Check Valve Assembly

The DCVA (or DCDA) shall be installed in a horizontal position unless otherwise recommended by this MANUAL or approved by PCU. If the Assembly is installed in an enclosure or building, adequate drainage shall be provided to maintain a dry location. If the Assembly is installed

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in a location susceptible to flooding, the Assembly shall be of the top entry type and the test cocks on the Assembly shall be plugged. To facilitate testing and maintenance, the bottom of the Assembly, 2 inches and smaller in diameter, shall be located a minimum of 12 inches and a maximum of 18 inches above the ground or floor. Assemblies measuring 2½ inches and larger in diameter shall not be less than 18 inches or more than 36 inches above the ground or floor. The side of the Assembly with the test cocks shall be located a minimum of 24 inches from the nearest fixed wall or obstruction. All other sides of the Assembly shall be located a minimum of 12 inches from the nearest fixed wall or obstruction.

F. Concrete Pads

Concrete pads shall be poured under all cross connection control assemblies and devices that are installed outside in accordance with the Utilities Standards and Specifications Manual. The width of the pad shall be a minimum of 24 inches, or shall extend at least 12 inches beyond the widest point on all sides of the assembly or device, whichever is greater. The length of the pad shall be 12 inches longer on both ends than the length of the entire assembly from outside of pipe to outside of pipe, which shall include the point where each pipe enters the ground. Adequate reinforcing using fiber mesh and/or No. 5 steel reinforcement bars shall be used and all piping passing through the pad shall be sleeved. The minimum thickness the pad shall be 4 inches and the minimum strength of the concrete shall be 3000 psi.

G. Painting and Color Coding

All cross connection control devices, assemblies, and associated piping, valves, and fittings shall be painted using the color codes stated below to protect the devices and for identification purposes. The CUSTOMER shall be responsible for the initial painting and the continual maintenance of all such painted surfaces. Meters shall not be painted.

Potable Water Systems	Blue
Fire Protection Systems	Red
Reclaimed Water Systems	Purple
Wastewater Systems	Green

If approved by PCU, the color Black may be substituted for the color Blue on a case by case basis for esthetic purposes.

All exterior paint used shall be long lasting and ultra-violet radiation stabilized to prevent fading. Each assembly shall be repainted during its

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annual test as a minimum.

H. Pipe and Fittings

All piping and fittings 2 inches and smaller in diameter shall be sweated copper or threaded brass from the point where the bend fitting leaves the CUSTOMER's service line underground on the upstream side of the assembly to the point where the bend fitting meets the CUSTOMER's service line underground on the downstream side of the assembly. Unions shall be used on all installations wherever possible.

All piping and fittings 2½ inches and larger in diameter shall be flanged ductile iron from the point where the bend fitting leaves the CUSTOMER's service line underground on the upstream side of the assembly to the point where the bend fitting meets the CUSTOMER's service line underground on the downstream side of the assembly. Restraining of joints shall be accomplished as appropriate.

I. Existing Systems

Prior to the installation of a new or upgraded cross connection control assembly or device on an existing service, PCU shall be notified by the CUSTOMER.

1. Fire Systems

Prior to the installation of a new or upgraded cross connection control assembly of an existing fire protection system, the Fire Department shall be notified. The hydraulics of the system shall be checked, and modifications recommended, by a registered professional engineer or certified fire protection system contractor so that the system shall be in compliance with this MANUAL. All modifications shall be the responsibility of the CUSTOMER.

2. Plumbing

The CUSTOMER shall be responsible for inspecting the existing plumbing system, and making all repairs necessary, to insure that all thermal expansion devices and/or pressure relief valves on all water heaters and other equipment are functioning properly, and are installed per the Florida Plumbing Code, prior to and immediately after the completion of the assembly's installation.

3. Potential Pressure Loss

As cross connection control assemblies or devices may result in a

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water pressure reduction of approximately 7 to 14 psi, water pressures at peak usage times shall be observed by the CUSTOMER prior to and after the installation. If the resulting pressures are not acceptable to the CUSTOMER for whatever reason, then the CUSTOMER may install pressure booster pumps at the CUSTOMER's expense.

10.10 CROSS CONNECTION CONTROL AND RECLAIMED WATER

A. Design Requirements

All reclaimed water systems shall be designed and constructed in accordance with the F.A.C. and the "Utilities Standards and Specifications Manual". The PCU criteria for the construction or water and sewer systems shall, as a minimum, include those requirements specified in the F.A.C. If the criteria is found to be in conflict or less restrictive than the provisions of the F.A.C., then the provisions of the F.A.C. shall prevail and shall govern the design and construction of reclaimed water systems owned and operated by PCU. More specifically, these requirements shall include, as a minimum, the following items:

1. Cross-Connection Control

Cross-connection of reclaimed water systems with any other water supply source or system is specifically prohibited.

An approved cross connection control device shall be installed on any potable water line serving property also served by reclaimed water.

2. Setback Requirements

Plans for subdivisions and commercial sites that include provisions for reclaimed water service shall identify the locations of existing potable water wells on all adjacent properties within 200 feet of the boundary of any potential reclaimed water wetted surface.

Reclaimed water application systems will not be considered or permitted within 75 feet of an existing or proposed FDEP and/or FDOH permitted potable water supply well.

Reclaimed water shall not be applied to the ground within 75 feet of potable water well.

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New potable water well construction shall be prohibited within 75 feet of reclaimed water irrigation area.

Minimum vertical and horizontal separations between reclaimed water lines, potable water lines and sewage lines shall be maintained in accordance with FDEP and/or FDOH regulations.

Reclaimed water irrigation systems located within 100 feet of public eating, drinking, or bathing facilities shall utilize low trajectory spray heads, or methods approved by PCU to reduce aerosol drift.

Reclaimed water irrigation systems shall be constructed and operated so as to minimize over-spray onto impervious surfaces, such as sidewalks, roadways, etc.

B. Signage and Identification

All sites utilizing reclaimed water shall be required to provide County approved public notice signs at all entrances identifying the area as a reclaimed water use area. Non-irrigation users of reclaimed water shall provide similar notification signage at the point of reclaimed water use. All signage shall be approved by PCU and comply with the STANDARD DRAWINGS contained within the "Utilities Standards and Specifications Manual".

All reclaimed water transmission lines shall be color-coded and/or labeled to specifically identify said piping as reclaimed water lines.

All new subdivisions and site plans shall specify the use of purple colored pipe as the standard material for reclaimed water service lines or other materials approved by PCU. All reclaimed water service lines shall include a locking curb stop and tag/label identifying the use of reclaimed water.

1. Prohibited Uses

Reclaimed water shall not enter any residential dwelling for any purpose.

Reclaimed water shall not be designated as a fire suppression source within any PCU service area.

There shall not be any above ground hose bib connections to the reclaimed water system. All hose bib connections must be located in below grade, locked vaults, and clearly labeled as being non-

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potable.

Reclaimed water shall not be used to fill swimming pools, hot, tubs, wading pools, spas, or similar appliances, tanker trucks used for transporting products intended for human consumption are prohibited from transporting reclaimed water.

Use of reclaimed water for any purpose other than those allowed by the F.A.C. shall be prohibited.

Failure to comply with the regulations governing the use of reclaimed water shall be cause for the discontinuation of reclaimed water service and any other penalties as appropriate.

2. Other Uses

Reclaimed water to be used for purpose other than urban landscape irrigation requires specific authorization by PCU.

C. Installation Requirements

The installation of reclaimed water mains shall be as specified in the "Utilities Standards and Specifications Manual".

All reclaimed water irrigation systems shall be permanent and installed in the ground.

D. Activation

All applications for reclaimed water service shall require a site inspection by PCU prior to activation.

All sites receiving reclaimed water must have an approved cross connection control assembly on the incoming potable water supply line as referenced in this MANUAL. No reclaimed water service shall be activated without all approved cross connection control assemblies being properly installed and tested.

Upon activation of the reclaimed water system, PCU may require testing to be performed at the CUSTOMER's expense to verify the separation of the potable and reclaimed water systems. Said testing shall include the "turn-off" of the potable supply valve and the opening of hose bibs and faucets. Any noted flow of water from any such faucet shall result in the immediate disconnection of the reclaimed water system. The reclaimed water system shall not be reactivated without demonstration that the possible cross-connection has been eliminated.

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Approval for activation shall be given only after all inspection items have been completed and approved in writing by PCU.

APPROVED CROSS CONNECTION CONTROL ASSEMBLIES LIST

APPENDIX A-100

Only the assemblies listed below shall be utilized within or connected to a PCU potable water system.

DOUBLE CHECK VALVE ASSEMBLIES (DCVA)

Manufacturer and Model	Size	Orientation
Wilkins 950 XL	.75″	Horizontal & Vertical Up
Wilkins 950 XL	1″, 1.25″, 1.50″, 2″	Horizontal
Wilkins 950 XLD	.75″	Horizontal & Vertical Up
Wilkins 350 – OS&Y Valves	2.5″, 3″,4″,6″,8″,10″	Horizontal & Vertical Up
Wilkins 350 – OS&Y Valves	12″	Horizontal
Wilkins 350 G	6″	Horizontal & Vertical Up

REDUCED PRESSURE PRINCIPLE/REDUCED PRESSURE DETECTOR ASSEMBLIES (RPPA/RPDA)

Manufacturer and Model	Size	Orientation
Wilkins 375 – OS&Y Valves	2.5″, 3″, 4″, 6″, 8″, 10″	Horizontal
Wilkins 975 XL	.75″, 1″, 1.25″, 1.5″, 2″	Horizontal
Wilkins 975 XLSE	.75″, 1″, 1.25″, 1.5″, 2″	N & Z
Wilkins 975 XLSEU	.75″, 1″, 1.25″, 1.5″, 2″	N & Z
Wilkins 975 XLV	.75″, 1″	N & Z

DOUBLE CHECK DETECTOR ASSEMBLIES (DCDA)

Manufacturer and Model	Size	Orientation
Wilkins 350DA – OS&Y Valves	2.5″, 3″,4″,6″,8″,10″	Horizontal & Vertical Up
Wilkins 350DA – OS&Y Valves	12″	Horizontal
Wilkins 350DAG – OS&&Y Valves	2.5″, 3″,4″,6″,8″,10″	Horizontal & Vertical Up
Wilkins 350DAG – OS&Y Valves	12″	Horizontal