SECTION XV

MARTIN COUNTY UTILITIES

MANUAL OF CROSS CONNECTION CONTROL AND BACKFLOW PREVENTION

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MANUAL OF

CROSS CONNECTION CONTROL

AND

BACKFLOW PREVENTION

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SECTION 1 – INTRODUCTION

A cross-connection is defined in the rule of the Florida Department of Environmental Protection (FDEP), Chapter 62-550 Florida Administrative Code (F.A.C.) as '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." Consequently, either cross-connections or the chance of backflow must be eliminated to prevent degrading the high quality of water that water suppliers strive to maintain.

The Rules of the FDEP, Chapter 62-555, F.A.C. require the following:

Community water systems, and all public water systems which have service areas that are also served by reclaimed water systems as defined in Chapter 62-610, Part III, F.A.C., shall establish a routine cross-connection control program to detect and prevent cross-connection that create or may create an imminent and substantial danger to public health. This program shall include a written plan that is developed using accepted practices of the American Water Works Association as set forth in "Recommended Practice for Backflow Prevention and Cross Connection Control", Manual M14 and "Cross Connections and Backflow Prevention," 2nd Edition.

Cross connection control programs specific to reuse systems shall consider the following:

a) Enhanced public efforts toward prevention of cross connections, and

b) Enhanced inspection programs for portions of the distribution system in areas of reuse of reclaimed water for detection and elimination of cross connections.

Upon discovery of a prohibited cross-connection, public water systems shall either eliminate the cross-connection by installation of an appropriate backflow prevention device acceptable to the FDEP or shall discontinue service until the contaminant source is eliminated.

SECTION 2 - GENERAL

A. PUPOSE

It is the purpose of this manual to establish a policy and regulations concerning cross-connections and backflow prevention devices for protection of the County's water systems; requiring installation, inspection, testing, maintenance and repair of the devices.

The purpose of this policy is to protect the public potable water supply of Martin County Utilities from the possibility of contamination. To promote the elimination or control of existing cross-connections, actual or potential, between its customers' on-site plumbing fixtures and industrial piping and the public water supply; and to provide for the maintenance of a continuing program of cross-connection control which will systematically and effectively prevent the contamination of the potable water distribution system. More specifically, the policy is intended to prevent delivered water (water that has passed beyond the public water system and is in the private distribution systems of consumers) from re-entering the public distribution system and being subsequently delivered to consumers and to allow a customers active piping design and installation to incorporate and install appropriate backflow prevention devices correctly.

B. ACCESS TO PREMISES FOR INSPECTION AND TESTING

Martin County Utilities shall have free access to the premises of any user of its water supply for the purpose of inspecting, and/or testing the backflow devices installed or to inspect the premises to determine if there are any cross-connections. If installation is required, then appropriate backflow devices shall be installed so that they are easily accessible for inspection, testing, maintenance and repair.

C. CAUSE OF BACKFLOW

The cause of backflow cannot be eliminated completely since backflow is often initiated by accidents or unexpected circumstances. However, some cause of backflow can be partially controlled by good design and informed proper maintenance. Listed below are the many causes of backflow as outlined under the two types of backflow: backsiphonage and backpressure.

1. Backsiphonage – Backsiphonage is caused by reduced or negative pressure being created in the supply piping. The principal causes of backsiphonage are:

a) A line repair or break, which is lower in elevation than a service point. This will allow negative or reduced pressures to be created by water trying to flow to a lower point in the system.

b) Undersized piping, if water is withdrawn from a pipe at a very high velocity, pressure in the pipe is reduced and the pressure differential created can cause water to flow into the pipe from a contaminated source.

c) Lowered pressure in water main due to high water withdrawal such as fire fighting, water main flushing, or water main breaks.

d) Reduced supply main pressure on suction side of a booster pump.

2. Backpressure – Backpressure may cause backflow to occur where a potable water system is connected to a non-potable system of piping, and the pressure in the non-potable system of piping exceeds that in the potable system. The principal causes of backpressure are:

a) Booster pump system designed without backflow prevention devices.

b) Potable water connections to boilers and other pressure systems without backflow prevention devices.

c) Connections with another system which may, at times have a higher pressure.

d) Water stored in tanks or plumbing systems which by virtue of their elevation would create head sufficient to case backflow if pressure were lowered in the public system.

SECTION 3 – PROHIBITION OF CROSS-CONNECTIONS

All cross-connections not protected by approved backflow prevention devices are prohibited and shall be corrected within a (60) sixty-day period following written notification of the existing installation. In the case of proposed installations, approved backflow devices must be installed prior to the installation of the water meter.

If the cross-connection poses a severe hazard to the public health, Martin County Utilities shall be empowered to immediately terminate the customer's water service until the situation has been corrected.

It shall be unlawful for the customer to make or allow others to create a cross-connection of potable water lines with either auxiliary water systems or piping and equipment containing toxic, harmful or objectionable substances. The customer shall be held responsible for adhering to this prohibition.

Backflow prevention assemblies shall be installed by the customer on the service connection of any premises that has been identified by Martin County Utilities as having a potential for backflow. Backflow devices shall be installed by the

customer within the premise if potable water is also used for industrial, commercial, and/or fire-fighting purposes. Martin County Utilities Cross Connection Control Manual shall serve as a guide to defining potential cross-connection and the solutions for preventing backflow into the County's water supply system. Unless otherwise stated in this chapter or in other County, State or Federal Laws and regulations, the recommendations of Manual M-14, AWWA, Recommended Practice for Backflow Prevention and Cross Connection Control shall apply to both the customer and the County.

Backflow prevention assemblies must be tested and inspected once a year by a Certified Tester. Maintenance and repair of the backflow prevention devices must be performed by a Certified Backflow Technician. The cost of this work shall be borne by the customer.

SECTION 4 – RESPONSIBILITY

A. CROSS CONNECTION PROGRAM

The responsibilities of the Martin County Utilities Department, Technical Services Division, and Cross-Connection Control Program in accordance with the rules of FDEP Chapter 62-555, F.A.C. are as follows:

1. To protect the Martin County water supply from the possibility of contamination by isolating within its consumers' private plumbing systems, contaminants or pollutants which could, under adverse conditions, backflow through uncontrolled cross-connections into the public water system.

2. To eliminate or control existing cross-connections, actual or potential, between the consumers' on-site potable water plumbing system(s) and non-potable water system(s), plumbing fixtures, and industrial piping systems.

3. To provide a continuing inspection program of cross-connection control, which will systematically and effectively control all actual or potential cross-connections which may be installed in the future.

B. CUSTOMERS

The customers' responsibility starts at the point of delivery from the public potable water system and includes all of their on-site water system. The customer (at his own expense) shall install, operate, test and maintain approved backflow prevention

assemblies, as directed by Martin County Utilities. The customer shall maintain accurate records of tests and repairs made to backflow prevention assemblies and provide Martin County Utilities with copies of such records. The records shall be on forms approved or provided by Martin County Utilities. In the event of accidental pollution or contamination of the public or consumer's potable water system due to backflow on or from customer's premises, the owner shall promptly take steps to confine further spread of pollution or contamination within the customer's premises, and shall immediately notify Martin County Utilities of the hazardous condition.

C. BACKFLOW PREVENTION ASSEMBLIES INSTALLERS

The installer's responsibility is to make proper installation of backflow prevention assemblies in accordance with the manufacturer's recommended procedures for installation and any additional instructions approved by Martin County Utilities. The installer is also responsible for making sure an assembly is working properly when it is installed, and is required to furnish the following information to the Cross Connection Control Program immediately after a backflow prevention device is installed:

1. Service address where device is located,
2. Owner,
3. Description of assembly's location and size,
4. Date of installation,
5. Type of assembly,
6. Manufacturer,
7. Model number, and
8. Serial number.

All RPZ, DDC, and PVB installations are required to be tested, after installation, by a certified backflow prevention technician. Record keeping is discussed in further detail in Section 8.

SECTION 5 – INSPECTIONS

A. FREQUENCY

Due to changes in models or components of equipment, methods of manufacturing and additions to plants, buildings, etc., water use requirements may change. As a result new cross-connections may be installed and existing protection may be bypassed, removed or made otherwise ineffective; therefore, an annual detailed inspection by the customer of all water usage is required. Actions for non-compliance are detailed in Section 14.

B. PROPOSED CONSTRUCTIONS

All new construction plans and specifications for multifamily residential, industrial and commercial facilities shall be reviewed by Martin County Utilities to determine

the degree of possible cross-connections hazard and applicable backflow prevention device requirements. Facilities not listed shall be reviewed on a case-by-case basis. All proposed construction classified as multifamily residential, commercial or industrial, where an application is unknown or undetermined, a reduced pressure backflow assembly (RPBA) shall be the minimum requirement.

C. NEW AND EXISTING FACILITIES

In order to determine the degree of hazard to the public potable water system, a survey will be made of the consumer's presently installed water system. This survey need not be a detailed inspection of the location or disposition of the water lines, but can be refined to establishing the water uses on the premises, the existence of cross-connections, and the availability of auxiliary or used water supplies. On-site inspections are made of new and existing facilities and should any devices or plumbing changes be required, a follow-up inspection will be made of the same facilities at a later date.

SECTION 6 – DEFINITIONS

1. AIR-GAP SEPARATION – The term air-gap separation shall mean 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 a distance of at least two times the diameter of the supply pipe measured vertically above the top rim of the receiving vessel with a minimum distance of one (1) inch.

2. APPROVED – Accepted by the Martin County Building Division or the Martin County Utilities Department.

3. ATMOSPHERIC VACUUM BREAKER – A backflow prevention device which is operated by atmospheric pressure in combination with the force of gravity. The unit is designed to work on a vertical plane only. The one moving part consists of a poppet valve which must be carefully sized to slide in a guided chamber and effectively shut off the reverse flow of water when a negative pressure exists.

4. AUXILIARY WATER SUPPLY – Any water supply on or available to the premises other than the supplier's approved public potable water supply. These auxiliary water supplies may include water from another supplier's water supply, a private non-potable 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 contaminated or they may be objectionable, and constitute an unacceptable water source over which the water supplier does not have sanitary control.

5. BACKFLOW – The flow of water or other liquids, mixtures or substances, under pressure, introduced into the distribution pipes of a potable water supply system from any source or sources other than the intended source.

6. BACKFLOW PREVENTION ASSEMBLY – A backflow prevention assembly shall mean any effective device, method or construction used to prevent backflow into a potable or reclaimed water system. The type of assembly used should be based on the degree of hazard, either existing or potential.

7. BACKFLOW PREVENTION ASSEMBLY, APPROVED – The term approved backflow prevention assembly shall mean an assembly that has met the requirements of one or more of the following standards:

AWWA – C511-89 Standard for Reduced- Pressure Principle Backflow Prevention Assembly.

AWWA – C510-89 Standard for Double Check Valve Backflow-Prevention Assembly

ASSE – 1020 Pressure Type Vacuum Breakers

ASSE – 1024 Dual Check Type Backflow Preventer (Residential service connections)

ASSE – 1013 Reduced Pressure Principle, Back Pressure Backflow Preventers that have met the laboratory and field performances specifications of the University of Southern California Foundation for Cross Connection Control and Hydraulic Research (USC-FCCC).

8. BACKFLOW PREVENTION ASSEMBLY CERTIFIED TECHNICIAN – The term certified backflow prevention technician shall mean a person who has proven his competency to the satisfaction of Martin County Utilities. Each person who is certified to make competent tests or to repair, overhaul and make reports on backflow prevention assemblies and shall be conversant with applicable laws, rules, and regulations and shall have attended and successfully completed FW & PCOA (FLORIDA WATER AND POLLUTION CONTROL OPERATORS ASSOCIATION) or TREEO (Training, Research, and Education for Environmental Occupations Center, University of Florida) certification programs for backflow prevention assembly tester and repair specialist or other programs acceptable to Martin County Utilities.

9. BACKPRESSURE – Backpressure shall mean any elevation of pressure in the downstream piping system (by pump, elevation of piping, or steam and/or air pressure) above the supply pressure at the point of consideration which would cause or tend to cause, a reversal of the normal flow.

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

11. CONTAMINATION – An adverse impact of the quality of the potable water supply by any solid, liquid, gaseous compounds or mixtures, to a degree, that would create a danger to the public health, or would create an unacceptable test result, odor or color in the potable water supply.

12. CROSS-CONNECTION – A cross-connection is defined in the rules of the Florida Department of Environmental Protection (FDEP), Chapter 62-550 Florida Administrative Code (F.A.C.) as " any physical arrangement whereby public water supply is connected, directly or indirectly with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixtures, 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 pr permanent devices through which or because of which backflow could occur are considered to be cross-connections."

13. CUSTOMER – Any person, business or other entity whose name or names appear on billing for a water service connection.

14. DOUBLE CHECK VALVE ASSEMBLY – An assembly composed of two single, independently acting, check valves, including tightly closing shut-off valves located at each end of the assembly and suitable connections for testing the watertightness of each check valve. A check valve is a valve that is drip-tight in the normal direction of flow when the inlet pressure is one (1) p.s.i. And the outlet pressure is zero (0). The check valve shall permit no leakage in a reverse direction of the normal flow. The closure element (e.g., clapper) shall be internally weighted or otherwise internally loaded to promote rapid and positive closure.

15. DEGREE OF HAZARD - The term degree of hazard is a qualification of the potential risk to public health and the adverse effect upon the public water system that may result from cross-connections within a water using facility. Establishing the degree of hazard is directly related to the type and toxicity of contaminants that could feasibly enter the public water supply system as determined by Martin County Utilities.

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

17. NONHEALTH HAZARD – 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.

18. PLUMBING HAZARD – A plumbing-type cross-connection in a consumer's potable water system that has not been properly protected by an approved air gap or an approved backflow-prevention assembly.

19. SYSTEM HAZARD – An actual or potential threat of severe damage to the physical properties of the public potable water supply system or the consumer's potable water system or of pollution or contamination that would have a protracted effect on the quality of the potable water in the system.

20. INDUSTRIAL PIPING SYSTEM – CONSUMER'S – The term consumer's industrial piping system shall mean any system used by the consumer for transmission of or to store any fluid, solid or gaseous substance other than an approved water supply. Such a system would include all pipes that convey or store substances, which are or may be polluted or contaminated.

21. PRESSURE VACUUM BREAKER – A pressure vacuum breaker is similar to an atmospheric vacuum breaker except that the checking unit "poppet valve" is activated by a spring. This type of vacuum breaker does not require a negative pressure to react and can be used on the pressure side of a valve.

22. REDUCED PRESSURE BACKFLOW PREVENTER – An assembly containing within its structure a minimum of two independently acting, approved check valves, together with an automatically operating pressure differential relief valve located between the two check valves. The first check valve reduces the supply pressure to a predetermined level so that during normal flow and at cessation of normal flow the pressure between the check valves shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the check valves at a pressure lower than the supply pressure. The unit shall include tightly closing shut-off valves located at each end of the device, and each device shall be fitted with properly located test cocks.

23. RECLAIMED WATER – Water that has received at least advanced secondary treatment with high level disinfection and is reused after flowing out of a wastewater treatment facility.

24. RESIDENTIAL DUAL CHECK – A compact unit manufactured with two independent spring actuated check valves. A residential dual check must be of the in-line type. The residential dual check is acceptable only as added backflow prevention in areas served by reuse systems defined in Chapter 62-610, Part III, F.A.C.

25. REUSE – The deliberate application of reclaimed water in compliance with the Florida Department of Environmental Protection and South Florida Water Management District rules, for a beneficial purpose.

26. SERVICE CONNECTION – The terminal end of a service connection from the public potable water supply 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 shall be no unprotected connections from the service line ahead of any meter or backflow-prevention assembly located at the point of delivery to the customer's water system. Service connection shall also include water service connections from a fire hydrant or any and all other temporary or emergency water service connections from the public potable water system.

27. WATER SUPPLIER – The term water supplier shall mean the owner or operator of the public potable water supply system providing an approved water supply to the public. The utility shall be one that is operating under a valid permit from the Florida Department of Environmental Protection. As used herein the term water supplier and Martin County Utilities may be used synonymously.

28. WATER SYSTEM – CUSTOMER'S – The term customer's water system shall include any water system located on the consumer's premises, whether supplied by a public potable water system or any auxiliary water supply.

29. WATER-USED – Any water supplied by a water supplier 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 supplier.

SECTION 7 – POTENTIAL HAZARDS AND REQUIRED PROTECTION

A. FACILITIES

1. Type of Backflow Protection Required: An approved backflow prevention device of the type designated shall be installed on each water service connection to the following types of facilities. This list is presented as a guideline and should not be construed as being complete

Abbreviations used are as follows:
AG –Air Gap Separations

RPBA – Reduced Pressure Backflow Prevention Assembly
DCVA – Double Check Valve Assembly

PVB – Pressure Vacuum Breaker
AVB – Atmospheric Vacuum Breaker
RDCA – Residential Dual Check Valve Assembly

2. Guide to the Assessment of Hazard and Selection of Assemblies for Internal Protection

Description of Cross Connection	Assessment of Hazard	Recommended Assembly at Fixture*
Aspirator (Medical)	Health	AVB or PVB
Bedpan washers	Health	AVB or PVB
Autoclaves	Health	RPBA
Specimen tanks	Health	AVB or PVB
Sterilizers	Health	RPBA
Cuspidors	Health	AVB or PVB
Lab bench equipment	Health	AVB or PVB
Autopsy and mortuary equipment	Health	AVB or PVB
Sewage pumps	Health	AG
Sewage ejectors	Health	AG
Fire-fighting systems (toxic liquid)		
Foam concentrates	Health	RPBA
Connection to sewer pipe	Health	AG
Connection to planting tanks	Health	RPBA
Irrigation systems with chemical additives or agents	Health	RPBA
Connection to salt-water cooling systems	Health	RPBA
Tank vats or other vessels containing toxic substances	Health	RPBA
Connection to industrial fluid systems	Health	RPBA
Dye vats or machines	Health	RPBA
Cooling towers with chemical additives	Health	RPBA
Trap primer	Health	AG
Steam generators	Nonhealth+	RPBA
Heating equipment		
Commercial	Nonhealth+	RPBA
Domestic	Nonhealth+	DCVA
Irrigation systems	Nonhealth+	DCVA, AVB, PVB
Swimming pools		

Public	Nonhealth+	RPBA, AG
Private	Nonhealth+	PVB, AG
Vending machines	Nonhealth+	RPBA, PVB
Ornamental fountains	Nonhealth+	DCVA, AVB, PVB
Degreasing equipment	Nonhealth+	DCVA
Lab bench equipment	Nonhealth+	AVB, PVB
Hose bibbs	Nonhealth+	AVB
Trap primers	Nonhealth+	AG
Flexible shower heads	Nonhealth+	AVB, PVB
Steam tables	Nonhealth+	AVB
Washing equipment	Nonhealth+	AVB
Shampoo basins	Nonhealth+	AVB
Kitchen equipment	Nonhealth+	AVB
Aspirators	Nonhealth+	AVB
Domestic space-heating boiler	Nonhealth+	RPBA

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

+Where a greater hazard exists (due to toxicity or other potential health impacts) additional area protection with RPBAs is required.

B. MINIMUM TYPE OF PROTECTION

	DESCRIPTION	TYPE
1.	Premises having an auxiliary water system.	RPBA
2.	Premises having a water storage tank, reservoir, pond, or similar appurtenance.	RPBA
3.	Premises having a steam boiler, cooling system or hot water heating system where chemical water conditioners are used.	RPBA
4.	Premises having submerged inlets to equipment.	RPBA
5.	Premises having self-draining yard hydrants, fountains, hose boxes or similar devices presenting a health or system hazard (i.e., chemical storage plants, tank farms, bulk storage yards).	RPBA
6.	Premises having self-draining/yard hydrants, fountains, hose boxes or similar devices presenting a pollution hazard (i.e.,	

parks, playing fields, cemeteries.) RPBA

7. Others as specified by Martin County Utilities.

SECTION 8 – RECORD KEEPING

It is essential that the program administrator of a cross-connection control program keep adequate records of all transactions. In addition to keeping records of all correspondence, particular emphasis must be placed on developing a record keeping system that accommodates monitoring of the following:

1. Installation date of assemblies.

2. Location of backflow-prevention assemblies.

3. Inspection and testing of backflow-prevention assemblies, including the performance of those backflow-prevention assemblies

4. The performance of licensed testers

SECTION 9 – FIRE SYSTEMS

A. TYPE OF BACKFLOW PROTECTION REQUIRED/FIRE PROTECTION SERVICES

Fire systems may be divided into six (6) general classes, as described below and in AWWA M-14.

Due to the variety of installation designs of fire systems which may preclude the use of a meter, the point of service shall be defined as the last valve prior to the pre-OS&Y valve. An approved backflow prevention assembly of the type designated shall be installed on each fire protection service to any premises where the fire protection system contains any of the components listed unless, Martin County Utilities determines that no real or potential health, pollution, or system hazard to the public water system exists.

B. MINIMUM TYPE OF PROTECTION

DESCRIPTION	TYPE
1. Class 1 – a closed automatic fire system without pumper connection, i.e., a system having 20 heads or less	DCVA
2. Class 2 – a closed automatic fire system with pumper connection.	DCVA

3. Class 3 – a closed automatic fire system with pumper connection

and an auxiliary water supply on or available to the premises; or an auxiliary water supply which may be located within 1700 feet of the pumper connection. RPBA

4. Class 4 – a closed automatic fire system with a closed pressure tank supply (this class may have a jockey pump inter-connected with domestic water supply and/or an air compressor connection). RPBA

5. Class 5 – a closed automatic sprinkler system interconnected with an auxiliary water supply RPBA

6. Class 6 – a fire system used for the combined purpose of supplying automatic sprinklers, hose lines, fire hydrants, and standpipes and/or being used for industrial purposes. RPBA

A. Self-Draining Fire Hydrants on premises presenting a health or system hazard (i.e., Chemical Plants, Petroleum Storage Plants, Bulk Storage Yards, Stock Yards, Sewer Plants, or similar facilities where ground seepage of toxic materials may occur). DCVA

B. Self-Draining Fire Hydrants on premises presenting A pollution hazard (i.e., Apartment House, Office Complex, Fabricating Plants, or similar facilities where ground seepage of pollution but not toxic materials may occur). DCVA

SECTION 10 – OTHER CROSS CONNECTION HAZARDS

1. AIR CONDITIONING COOLING TOWERS: A potable water inlet shall have an AG separation of twice the inside diameter of the inlet or a minimum of two (2) inches above the flood level.

2. ASPIRATORS AND EJECTORS: Shall have an AG or PVB, depending upon the degree of hazard, on the faucet from which these devices are attached to or operated from.

3. BOOSTER PUMPS: All booster pumps shall be provided with a low pressure cut-off unless other acceptable provisions are made to prevent the creation of low or negative pressures in the piping system.

4. EXTERMINATING COMPANIES: All tanks, tank trucks, and spraying apparatus used to convey pesticides in an exterminating process are required to use

only designated-protected potable water fill locations. Filling with potable water at unspecified locations or private residences is prohibited. All filling locations will consist of over-head piping arrangements with correctly installed pressure vacuum breakers. If for any reason an overhead piping arrangement cannot be used, a reduced pressure zone backflow preventer must be installed on the fill line. All filling locations must be approved by Martin County Utilities.

5. FIXTURE INLETS OR VALVED OUTLETS: Hose attachments, which may constitute a cross-connection, shall be protected by the proper approved vacuum breaker installed at least six (6) inches above the highest point of usage and located on the discharge side of the last valve.

6. MISCELLANEOUS USES OF WATER FROM FIRE HYDRANTS: the operation of fire hydrants by anyone other than authorized personnel is prohibited. The Utilities Department may permit the use of water from a fire hydrant for construction or other purposes provided the applicant shall properly apply for, and adhere to the backflow requirements on the hydrant permit.

7. PORTABLE SPRAY AND CLEANING EQUIPMENT: Any portable pressure spray or cleaning units that have the capability of connecting to any potable water supply and do not contain a built-in approved air gap, should be fitted with a reduced pressure backflow device.

8. PRIVATE WELLS: Shall not be interconnected to a public water supply unless the public supply is protected by an RPBA at the service connection, and approval is given by Martin County Utilities.

9. VACUUM BREAKERS: Vacuum relief valves designed to prevent collapse or implosion of a steam-heated pressure vessel when being cooled are not acceptable devices for protection against backflow in potable water supply lines.

Note: Any device, equipment, or situation not covered by this cross-connection policy, which may constitute a potential public health hazard, will be examined for appropriate treatment by Martin County Utilities, or it's authorized agent. Single check valves will not be accepted as a means to protect the potability of drinking water and therefore may only be used to prevent backflow which would affect the functioning of a plumbing system such as to prevent recirculation of potable hot water. Where single check valves are improperly used, they will be required to be replaced by an appropriate approved backflow prevention assembly.

SECTION 11 – TESTING OF BACKFLOW PREVENTERS

It shall be the duty of the customer-user at any premises where reduced pressure backflow prevention assemblies (RPBA), double check valve assemblies (DCVA),

and pressure vacuum breakers (PVB) and residential dual check valve assemblies (RDCA) are installed to have thorough inspections and operational tests made at least once a year or more often in those instances where inspections indicate a need. These inspections and tests shall be at the expense of the water customer/user and be performed by a certified technician. The water supplier will notify the customer/user when tests are required and supply the necessary test forms and instructions. These forms will be completed and returned to the water supplier by the date indicated.

All backflow prevention assemblies with test cocks are required to be tested with a minimum frequency of once per year. Testing requires a water shutdown usually lasting five (5) to twenty (20) minutes. For facilities that require an uninterrupted supply of water, and when it is not possible to provide water service from two separate meters, provisions shall be made for a "parallel installation" of backflow prevention assemblies.

Muti-story buildings which have a number of flushometer toilets shall be equipped with parallel assemblies. Experience has shown if the water supply is shut off to this type of building flushometers may have to be manually reset.

During testing one assembly is left on while the other is being tested. Usually the two assemblies are sized one assembly size smaller than the service line, e.g. one 2 inch device for two 1-1/2 inch assemblies, one 8 inch assembly for two 6 inch assemblies.

Martin County Utilities will not accept any unprotected bypass around a backflow preventer when the assembly is in need of testing, repair or replacement.

SECTION 12 – PENALTIES FOR NON-COMPLIANCE

Termination of service: A written notification detailing all cross-connections found during the inspection will be sent to the owner or authorized agent of the owner of the building or premises, stating that corrections must be made and setting a reasonable time for compliance. Upon failure of the owner or authorized agent of the owner of the building or premises to have the defect(s) corrected within the specified time, the water supplier shall cause the water service to the building or premises to be terminated. The water supplier shall cause discontinuance of water service if a required backflow prevention assembly has been bypassed or failed to be tested and properly maintained as required by this policy statement. The water supplier shall also cause discontinuance of water serve if an air-gap separation system is compromised.

SECTION 13 – RETROFITTING EXISTING FACILITIES

All premises of the type where cross-connections are suspect, may be surveyed by Martin County Utilities to determine if a detailed inspection will be required. The customer shall be notified in writing thirty (30) days in advance to secure an appointment for inspection of the premises. The customer or his authorized representative may accompany the inspector during the tour of the premises.

An inspection form will be completed by the inspector. The customer shall be made aware of any corrective measures needed. All official letters of notification shall be sent to the customer indicating what corrective measures must be taken. Upon conformance of the requirements in the notification letter, the customer shall immediately notify Martin County Utilities to schedule a date of reinspection.

All existing facilities, which qualify as cross-connection risks will be retrofitted with backflow prevention devices, appropriate to their classification, on the customer's side of the meter, or point of service. Proof of proper operation of the assembly must be submitted to Martin County Utilities with a statement signed by a recognized, certified tester.

In the event that the report is not received within ninety (90) days of notification, service will be immediately discontinued unless a schedule of compliance has been submitted to, and approved by Martin County Utilities.

The customer will be responsible for any and all applicable fees, charges, or other costs associated with retrofitting. The customer will be responsible for the annual, or more frequent, retesting, maintenance, repair or replacement of the assembly. The requirement for more frequent testing will be determined on a case by case basis by Martin County Utilities, primarily, upon the degree of hazard. Any work done to, or testing of, the assembly shall be reported to Martin County Utilities within seven (7) days of the incident.

SECTION 14 – RECLAIMED WATER

This is a summary of the important facts concerning the use of Reclaimed Water for irrigation within Martin County Utilities Service area. The information contained in this document is based on County Ordinances and official polices regarding the availability and use of reclaimed water. More specific and technical information can be obtained by direct reference to Ordinance # 276, and Chapter 62-610 F.A.C., Reuse of Reclaimed Water and Land Application.

What is Reclaimed Water?

It is sparkling, disinfected water that meets all requirements as described Chapter 62-610 Part III, F.A.C. for irrigation to areas that are intended to be accessible to the public. It has been reclaimed from wastewater that has received advanced tertiary treatment and high-level disinfection. Reclaimed water can be used safely for irrigation and decorative purposes in areas open to public access and for residential and commercial irrigation. Reclaimed water has been successfully used in neighboring areas for golf courses and lawn irrigation for many years.

Advantages of reclaimed Water:

The use of reclaimed water for irrigation is a proven technology that is safe and beneficial. It has several advantages over irrigation with well and potable water. The use of reclaimed water conserves potable water. This means less pumping of our precious underground aquifer, which supplies potable water. Reclaimed water is cheaper to use than potable water, and contains small amounts of nutrients, such as nitrogen and phosphorus, which both lawns and plants need. There are also fewer irrigation restrictions for reclaimed water during periods of drought.

Connection Requirements:

Once reclaimed water service for irrigation is made available to an area, the use of potable water for irrigation will be curtailed to the maximum extent practicable, utility customers in the area may be required to connect to the reclaimed water for irrigation of lawns and landscaping. Some wells will be permitted in areas where reclaimed water is available to provide an augmentation supply for the overall Martin County Utilities reuse water system. Residents will be responsible for connection to the County provided service valves. Once the reuse water line is connected, the county will perform an inspection for cross connection protection.

Connection Reuse Water Procedure:

Individual reuse water services are installed where reclaimed water mains and capacity are available. There will be a purple box, with a connection valve, adjacent to the property line. Individual users may connect reuse water only to an irrigation sprinkler system. Only the county may use the valves located in the meter box at the customer's property line. Therefore, each user will be required to install a separate control box to regulate their irrigation cycles. All installations and operation of reclaimed water systems shall be in accordance with Chapter 62-610 F.A.C.

Restriction on the use of Reclaimed Water:

Reclaimed water is safe for irrigation and other ornamental use, but is not safe for drinking. Certain safeguards are required in order to reduce the possibility of accidental drinking of reclaimed water. No cross-connection or inter-connection is

permitted between reclaimed water lines and potable water lines. *Aboveground spigots and faucets may not be connected to the reclaimed water system*. Reclaimed water will not be piped into, or used inside, a structure. The County may inspect any property to insure no cross-connection exists. In the event a cross-connection is found to exist, the user will be disconnected from the reclaimed water system until the cross connection violation is corrected.

SECTION 15 - REVIEW AND UPDATE

Martin County Utilities will on an annual basis review, and, if necessary, update, the cross connection control policy to meet current, local, state and federal standards.