Approved December 17, 2007

Floral City Water Association Inc.

Policy for the Control of Backflow and

Cross-Connections

Section 1: Cross-Connection Control – General Policy

1. **Purpose:**

The purpose of this policy is to comply with Florida Department of Environmental Protection Statue Rules and Regulations and Florida Administrative Codes 62-550 and 62-555.

A. To protect the public potable water supply of the Floral City Water Association (Hereafter, the Association) from the possibility of contamination or pollution by isolation within the customer's internal distribution system(s) or the customer's private water system(s) such contaminants or pollutants that could backflow into public water system; And
B. To promote the elimination or control of existing cross-connections, actual or potential, between the customer's in-plant potable water system(s) and non-potable water systems, plumbing fixtures, and industrial piping systems; And
C. To provide for the maintenance of a continuing program of cross-connection control that will systematically and effectively prevent the contamination of all potable water systems.

2. **Responsibility:**

The Superintendent of the Association, or his authorized representative, shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow of contaminants or pollutants throughout the water service connection. If, in the judgment of the Superintendent or his authorized representative, an Approved Backflow Prevention Assembly is required at the customer's water service connection for the safety of the water system, the Association will install such an Approved Backflow Prevention Assembly(s) at specific location(s) on the customer's premises at the Association's expense. If a customer refuses said Assembly(s), it shall constitute grounds for discontinuing water service to the premises until the customer complies and all conditions have been satisfactorily met.

Section 2: Definitions:

Approved Backflow Prevention Assembly: Accepted by Floral City Water Association as meeting an applicable specification stated or cited in the following standards as suitable for the proposed use.

AWWA – C-506 Standard for Backflow Prevention Devices, Reduced Pressure Principal and Double Check Valve Types.

ASSE - 1001	Atmospheric Type Vacuum Breakers
ASSE - 1020	Pressure Type Vacuum Breakers
ASSE - 1013	Reduce Pressure Principal Back Pressure Backflow Preventers
ASSE - 1015	Double Check Valve Type Back Pressure Backflow Preventers
USC-FCCC	University of Southern California Foundation for Cross-Connection Control and Hydraulic Research

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

Backflow: The undesirable reversal flow in a potable water distribution system as a result of a cross-connection.

Backflow Preventers: An assembly or means designed to prevent Backflow. There are three Association Approved Backflow Preventers.

1.) **Air Gap:** The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet conveying water or waste to a tank, plumbing fixture, receptor, or other assembly and the flood level rim of the receptacle. These vertical, physical separations must be at least twice the diameter of the water supply outlet but never less than 1 inch (25mm).

2.) **Reduced Pressure Backflow Prevention Assembly:** The Reduced Pressure Principle Backflow Assembly consists of two independently action approved check valves together with hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and below the first check valve. These units are located between two tightly closing resilient seated shutoff valves as an assembly and equipped with properly located resilient seated test cocks.

3.) **Double Check Valve Assembly:** The Double Check Valve Assembly consists 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 only be used to protect against a Non-Health hazard (that is a pollutant).

Backpressure: A pressure, higher than the supply pressure, caused by a pump, elevated tank, boiler, or any other means that may cause backflow.

Backsiphonage: Backflow caused by negative or reduced pressure in the supply piping.

Certified Backflow Technician: A person who has proven their competency to the satisfaction of Floral City Water Association Inc. and who has attended and successfully completed the TREEO (Training, Research, and Education for Environmental Operators) Certification Program for Backflow Prevention Device Testers at the University of Florida or any other accepted programs.

Contamination: An impairment of a potable water supply by the introduction or admission of any foreign substance that degrades the quality and creates a health hazard.

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-Connection – 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 cross-connection.

Degree of Hazard:

1. **Health:** 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.
2. **Non-Health:** 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.
3. **Plumbing:** A plumbing type cross-connection in a customer's potable water system that has not been properly protected by an Air Gap or Approved Backflow Prevention Assembly.
4. **System:** An actual or potential threat of severe damage to the physical properties of the public potable water system or the consumer's potable water system or of a pollution or contamination that would have a protracted effect on the quality of the potable water in the system.

Industrial Fluids System: Any system containing a fluid or solution that may be chemically, biologically, or otherwise contaminated or polluted in a form or concentration, such as would constitute a health, system, pollution or plumbing hazard, if introduced into an approved water supply. This may include, but not limited to: Polluted or contaminated water; all types of process waters and used waters originating from public potable water system that may have deteriorated in sanitary quality; chemicals in fluid form' plating acids and alkali's; circulating cooling waters connected to an open cooling tower; and/or cooling towers that are chemically or biologically treated or stabilized with toxic substances; contaminated natural waters, such as wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems, and so forth; Oils, gases, glycerin paraffin's, caustic and acid solutions, and other liquid and gaseous fluids used in industrial or other purposes for fire-fighting purposes.

Pollution: The presence of any foreign substance in water that tends to degrade its quality so as to constitute a non-health hazard or impair the usefulness of the water.

Service Connection: The terminal end of a service connection from the public potable water system, that is, where the water purveyor loses jurisdiction and sanitary control over the water at its point of delivery to the customer's water system. There should be no unprotected take-offs 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 connection from a fire hydrant and all other temporary or emergency water service connections from the public potable water system.

Superintendent: The Superintendent (or his authorized representative) of the Association invested with the authority and responsibility for the implementation of an effective Cross-Connection Control Program and for the enforcement of the provisions of this ordinance.

Water – Non-Potable: Water that is not safe for human consumption or that is of questionable quality.

Water - Potable: Water that is safe for human consumption as described by the public health authority having jurisdiction.

Water - Used: Any water supplied by a water purveyor from a public potable water system to a consumers water system after it has passed through the point of delivery and is no longer under sanitary control of the water purveyor.

SECTION 3: Requirements:

1.) Water System

A.) The water system shall be considered as made up of two parts: The Utility system and the consumer system.

B.) Utility System shall consist of the source facilities and the distribution system, and shall include all those facilities of the water system under the complete control of the utility, up to the point where the customers system begins.

C.) The source shall include all components of the facilities utilized in the production, treatment, storage and delivery of water to the distribution system.

D.) The distribution system shall include the network of conduits used for the delivery of water from the source to the customers system.

E.) The customers system shall include those parts of the facilities beyond the termination of the utility distribution system that are utilized in conveying utility delivered domestic water to points of use.

2.) Policy:

A.) Service Requirements

No water service connection to any premises shall be installed or maintained by the water purveyor unless the water supply is protected as required by Florida Law and this policy. Service of water to any premises shall be discontinued by the water purveyor if a Backflow Prevention Assembly required by this policy is not installed, tested, and maintained, or if it is found that a Backflow Prevention Assembly has been removed, bypassed, or if an unprotected cross-connection exists on the premises. Service will not be restored until such conditions or defects are corrected.

B.) Customer's System Inspections

The customer's system should be open for inspection at all reasonable times to authorized representatives of the Association to determine whether cross-connections or other structural or sanitary hazards, including violations of these regulations exist. When such a condition becomes known, the Association shall deny or immediately discontinue service to the premises by providing for a physical break in the service line until the customer has corrected the condition(s) in conformance with all applicable regulations relating to plumbing and water supplies and the regulations adopted pursuant thereto.

C.) Conditions Warranting An Approved Backflow Assembly

An Approved Backflow Prevention Assembly shall be installed on each service line to a customer's water system at or near the property line and before the first branch line leading off the service line wherever the following conditions exist;

1. As required by and in accordance with F.A.C. 62-555 all connections, permanent or temporary, to the Association public water system shall be protected against potential backflow, backsiphonage, or cross-connection by the installation of a Association Approved Backflow Prevention Assembly. All facilities other than single family residences including but not limited to commercial or industrial enterprises, schools, office buildings, mobile home parks or irrigation systems shall install a Reduced-Pressure Principal Backflow Prevention Assembly.

2. In the case of premises having an auxiliary water supply that is not or may not be of safe bacteriological or chemical quality and that is not acceptable as an additional source by the Association, the public water system shall be protected against backflow from the premises by the installation of an Approved Backflow Prevention Assembly in the service line, appropriate to the degree of hazard.

3. In the case of premises on which 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 system shall be protected against backflow from the premises by installing an Approved Backflow Prevention Assembly in the service line, appropriate to the degree of hazard. This shall include the handling of process waters and waters originating from utility system that have been subject to deterioration in quality.

4. In the case of premises having one (1) internal cross-connections that cannot be permanently corrected and controlled, or two(2) intricate plumbing and piping arrangements or where entry to all portions of the premises is not readily accessible for inspection purpose, making it impracticable or impossible to ascertain whether or not

dangerous cross-connections exist, the public water system shall be protected against backflow from the premises by installing an Approved Backflow Prevention Assembly.

D.) Type of Assembly

Type of protective assembly required shall depend upon the degree of hazard that exists as follows:

1.) In the case of any premises where there is an auxiliary water supply as stated in subsection C (Conditions Warranting An Approved Backflow Assembly) of this policy and it is not subject to any of the following rules, the public water supply system shall be protected by Air-Gap separation or an Approved Reduced Pressure Principle Backflow Prevention Assembly.

2.) In the case of any premises where there is water or substance that would be objectionable but not hazardous to health, if introduced into the public water system, the public water system shall be protected by an Approved Double Check Valve Assembly.

3.) In the case of any premises where there is any material dangerous to health that is 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 by Air-Gap separation or an Approved Reduced-Pressure Principle Backflow Prevention Assembly. Examples of premises where these conditions will exist include sewage treatment plants, sewage pumping stations, chemical manufacturing plants, hospitals, mortuaries, and planting plants.

4.) In the case of any premises where there are "uncontrolled" cross-connections, either actual or potential, the public water system shall be protected by Air-Gap separation or an Approved Reduced Pressure Principle Backflow Prevention Assembly at the service connection.

5.) In the case of any premises where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to make a complete in-plant cross connection survey, the public water system shall be protected against backflow from the premises by either Air-Gap separation or an Approved Reduced Pressure Principle Backflow Prevention Assembly on each service to the premises.

6.) In the case of any premises where in the opinion of the Association, an undue health threat is posed because of the presence of extremely toxic substance, the Superintendent may require an Air-Gap at the service connection to protect the public water system. This requirement shall be at the discretion of the Association and is dependent upon the degree of hazard.

E.) Testing, Inspections and Repairing

A fee of $3.00 per month will charged to each water service in the system that is required to have a Double Check Valve Assembly or Reduced Pressure Principle Backflow Prevention Assembly. The Association is responsible to ensure the assembly is working, by annual testing, and should the assembly fail, the Association would then be responsible for the repair/replacement and retesting of the assembly. The customer is responsible for any water loss that occurs from vandalism, accident or any other cause involving the assembly. However,

the Association will repair or replace the assembly itself, upon notification, by the customer, at no cost. Thus, to mitigate the loss to the customer, the customer should notify the Association, of any such damage or leakage as soon as possible. Only persons that are certified in backflow prevention assembly repair and maintenance or a licensed plumber may repair Backflow Prevention Assemblies.

Pertinent Sections of Florida Administrative Codes 62-550 and 62-555

Defines cross-connections, 62-550.200:(22):

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

Prohibits cross-connections, 62-555.360(1):

Cross-connection, as defined in Rule 62-550.200, F.A.C., is prohibited. However, a person who owns or manages a public water system may interconnect to another public water system if that system is operated and maintained in accordance with this Chapter.

Requires a cross-connection control program, 62-555.360(2):

Community Water systems, and all public water systems which have service areas that are also served by reclaimed water systems regulated under Part III, of Chapter 62-610, F.A.C., shall establish and implement a routine cross-connection control program to detect and control cross-connections and prevent backflow of contaminants into the water system, This program shall include a written plan that is developed using recommended practices of the American Water Works Association set forth in *Recommended Practices for Backflow Prevention and Cross-Connection Control*, AWWA Manual M14, as incorporated into Rule 62-555.330 F.A.C.

What shall be done if a cross-connection exists, 62-555.360(3):

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 Department or shall discontinue service until the contaminant source is eliminated.

Requires that backflow preventers be installed under the supervision of the water supplier, also states where backflow preventers should be installed, 62-555.360(4):

Only the following are considered to be backflow prevention devices. They shall be installed in agreement with and under the supervision of the supplier of water or his designated representative (plumbing inspector, etc.) at the consumer's meter, at the property line of the consumer when a meter is not used, or at a location designated by the supplier of water or the Department. The devices are:

(a) 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 airgap separation" shall be at least double the diameter of the supply pipe measured vertically above the top of the rim of the vessel. In no case shall it be less than 1 inch.

(b) Reduced pressure backflow preventer - A device 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 a predetermined amount so that during normal flow and at cessation of normal flow the pressure between the checks 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 checks less than the supply pressure. The unit shall include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks.

(c) 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 water when a negative pressure exists.

(d) 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 a pressure side of a valve.

(e) Double check valve assembly - An assembly composed of two single, independently acting, check valves, including tightly closing shutoff valves located at each end of the assembly and suitable connections for testing the water tightness 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 psi and the outlet pressure is zero. The check valve shall permit no leakage in a direction reverse to the normal flow. The closure element (e.g. clapper) shall be internally weighted or otherwise internally loaded to promote rapid and positive closure.

(f) Residential Dual Check - A compact unit manufactured with two independent spring actuated check valves. 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., when the cross connection control program identifies activities specific to (5)(a) and (5)(b) of this section.

Specific Authority 403.086(8), 403.861(9) FS. Law Implemented 403.086(8), 403.855(3) FS. History–New 11-19-87, Formerly 17-22.660, Amended 1-18-89, 1-3-91, 1-1-93, Formerly 17-555.360, Amended 8-28-03.

Defines maximum contaminant level (mcl), 62-550.200(48):

"MAXIMUM CONTAMINANT LEVEL" (MCL) means the maximum permissible level of a contaminant in water which is delivered to any user of a public water system. Prohibits the introduction of contaminants that do not have a maximum contaminant standard, 62-550.330

62-550.330 Other Contaminants Without a Standard.

No contaminant which creates or has the potential to create an imminent and substantial danger to the public shall be introduced into a public water system.

Specific Authority 403.861(9) FS. Law Implemented 403.852(12), (13), 403.853(1) FS. History–New 11-19-87, Formerly 17-22.230, 17-550.330.

62-555.330 Engineering References for Public Water Systems. In addition to the requirements of this chapter, the requirements and standards contained in the following technical publications are hereby incorporated by reference and shall be applied in determining

whether permits to construct or alter a public water system components, excluding wells (but including well pumping equipment and appurtenances), shall be issued or denied. Each of these publications is available from the publisher or source listed for the publication. The specific requirements contained in this chapter supersede the requirements and standards contained in these publications. Where there are conflicts between these publications, suppliers of water and construction permit applicants shall comply with any one of the publications. Where there are multiple options or alternatives in these publications, suppliers of water and construction permit applicants shall comply with any one of the options or alternatives. The Department shall allow exceptions to the requirements and standards in these publications if suppliers of water or construction permit applicants provide justification for each exception and provide alternative design and construction features that achieve the same purpose and that afford a similar level of strength, durability, reliability, and public health protection.

(1) *Water Quality and Treatment: A Handbook of Community Water Supplies,* Fifth Edition

(2) *Water Treatment Plant Design,* Third Edition

(3) *Recommended Standards for Water Works,* 1997 Edition

(4) Standards of the American Water Works Association (AWWA)

(5) *Water Fluoridation: A Manual for Engineers and Technicians*, September 1986

(6) *Recommended Practice for Backflow Prevention and Cross-Connection Control,* AWWA Manual M14, Second Edition, 1990, American Water Works Association (AWWA). Published by AWWA, 6666 W. Quincy Avenue, Denver, Colorado 80235.

(7) *Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse,* December 2000

(8) *Water Distribution Systems Handbook,* 1999

Requires that records on backflow prevention be maintained for a period of 10 years, 62-550.720(3):

Copies of any written reports, summaries or communications relating to cross-connection control programs or sanitary surveys of the system conducted by the system itself, by a private

consultant, or by any local, State or Federal agency, shall be kept for a period of not less than 10 years after completion of the sanitary survey.

PART VII SURVEILLANCE, RECORD KEEPING, AND REPORTING

62-550.720 Recordkeeping.

Suppliers of water shall retain on their premises, or at a convenient location near their premises, the following records:

(1) Records of bacteriological analyses made under this chapter shall be kept for not less than 5 years. Records of physical, chemical, or radiological analyses made under any portion of this chapter other than Rule 62-550.800, F.A.C., shall be kept for not less than 10 years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that the information required in Rule 62-550.730, F.A.C., is included.

(2) Records of action taken by the system to correct a violation of primary drinking water regulations shall be kept for a period not less than 3 years after the last action taken with respect to the particular violation involved.

(3) Copies of any written reports, summaries, or communications relating to cross-connection control program or sanitary surveys of the system conducted by the system itself, by a private consultant, or by any local, State or Federal agency, shall be kept for a period not less than 10 years after completion of the sanitary survey.

(4) Records concerning a variance or exemption granted to the system shall be kept for a period ending not less than 5 years following the expiration of the variance and exemption.

(5) Monthly operation reports shall be kept for a period of not less than 10 years.

(6) Any system subject to the requirements of Rule 62-550.800, F.A.C., shall retain, for no fewer than 12 years, original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, Department determinations, and any other information required by Rule 62-550.800, F.A.C.

Specific Authority 403.861(9) FS. Law Implemented 403.861(16) FS. History–New 11-19-87, Formerly 17-22.820, Amended 1-18-89, 1-1-93, 7-4-93, Formerly 17-550.720, Amended 11-27-01.

Implementation of

Control of Backflow and Cross-Connections Policy

1. Acceptance of the policy by the Board of Directors on December 17, 2007.
2. Publication of the policy on the Floral City Water website.
3. Continuation of installation of dual check valves on all residential connections at Association expense.
4. Continuation of installation of approved backflow assemblies on all commercial accounts at Association expense.
5. On-site survey of all commercial accounts, including accounts with backflow prevention, to determine the degree of risk to the system associated with each property.
6. Ranking of all commercial properties by degree of risk.
7. Installation or replacement of backflow assemblies by order of ranking at Association expense.
8. Concurrent to the installation of commercial backflow assemblies, an effort to educate our residential customers of the dangers of cross-connections consisting of website pages, posters in the customer area, and a letter mailed to each member of the system describing our efforts and goals.
9. On-site inspection and testing of all residential accounts to determine if an operating well is on the property, then determining if that well is connected to the customer's private distribution system.
    a. If an operating well is on the property, the meter will be turned off and pressure will be tested down stream of the Association ball valve.
    b. If no pressure is detected and no visible or potential cross-connection can be found, the account will be considered in compliance.
    c. If pressure is detected the customer will be in violation and will have the option of capping the well or proving the connection is completely severed with no ability to connect to the water supply.
    d. If the customer refuses to comply by refusing our inspection or by not permanently correcting any cross-connection found on the property, the Association will install and maintain an approved backflow assembly at the customer's expense.
    e. Once one of the options above is implemented, water service will be restored to the customer.
    f. Additional testing will be required if the well remains in operation for whatever purpose to ensure no cross-connection has been made.
10. On-site inspection and testing of all residential accounts to determine if an irrigation system is on the property, then determining if that system is connected to the customer's private distribution system.
    a. If an irrigation system is on the property, the system will be inspected to insure that the installation of an approved means of backflow had been properly installed on the irrigation system to prevent backflow from returning to the distribution system.

b. If there is no backflow protection or it is found that the protection offered is insufficient to meet local and state codes, the customer will be required to make repairs to the system that will meet or exceed those requirements.
c. If the customer refuses to comply by refusing our inspection or by not permanently correcting any cross-connection found on the property, the Association will install and maintain an approved backflow assembly at the customer's expense.

11. Annual testing and repair if necessary of all backflow assemblies.