



AGENDA MEMORANDUM

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| Meeting Date: | June 23, 2003 |
| From: | Raymond S. Sharp, Acting Director, Environmental Services |
| Subject: | Backflow Prevention Ordinance |

Staff Recommendation:

Adoption of this ordinance will update the City's existing backflow prevention program, provide for enforcement of violations through Code Enforcement procedures and provide for future updates of the Cross Connection Control Program by resolution. Staff recommends approval.

Analysis:

The Cross Connection Control Program comprises a manual of procedures and references which are intended to protect the public water supply from contamination. This is accomplished by the proper application of backflow prevention devices and measures on customer water services. The existing Cross Connection Control Program requires some technical updates and some changes to provide for better enforcement measures. The major change in the latter area is that noncompliance violations will be handled through the Code Enforcement Special Master.

This ordinance also allows for more timely updates to the Cross Connection Control Program when necessary, first with the City Manager's approval, and then with the Commission's approval by resolution.

Options:

1. Adopt the ordinance and program as presented; or,
2. Such other action as the Commission may deem appropriate.

Fiscal Impact:

As an update of existing procedures, there is no significant fiscal impact.

Submission Date and Time: 6/12/03 8:36 AM

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| Department: <u>Environmental Services</u> Prepared by: <u>R. Sharp</u> Attachments: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Reviewed by: Dept. Head _____ Deputy Fin. Dr. _____ Deputy C.M. _____ Submitted by: _____ City Manager _____ | Advertised: <input type="checkbox"/> Not Required <input type="checkbox"/> Dates: _____ Newspapers: _____ |
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INTRODUCTION

A cross-connection is defined in chapter 62.550.200, Florida Administrative code as “Any physical arrangement whereby a public water supply is connected directly or indirectly with any other water supply or 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. Bypass arrangements, jumper connection 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 purveyors strive to maintain.

Cross-connection control programs, as administered by water purveyors, are relatively new to Florida. Initially, the primary responsibility for safeguarding water quality on private property was left to local health agencies and building inspection departments. Then, beginning with the safe drinking water act, signed by President Ford on December 16, 1974, a chain of laws and regulations evolved that resulted in the state requirement (Florida safe drinking water act, section 403.861(9) Florida statutes) that all public water systems must have a cross-connection control program. According to Florida Administrative Code, chapter 62-555.360(2)

“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-connections that create or may create an imminent and substantial danger to public health. Upon detection of a prohibited cross-connection, both community and noncommunity water systems shall either eliminate the cross-connection by installation of an appropriate backflow prevention device acceptable to the Department of Environmental Protection (DEP) or discontinue service until the contaminate source is eliminated. (62-555.360(3) This program shall include a written plan that is developed using accepted practices of the American water works association (AWWA) as set forth in the reference documents cited in rules 62-555.330(6) and (7), F.A.C.”

The specific references cited are: “Recommended Practices for Backflow Prevention and Cross-Connection Control(M14)” and “Cross Connections and Backflow Prevention”, 2nd edition, American Water Works Association, 1974, American Water Works Association, 6666 W. Quincy Avenue Denver, Colorado 80235

The City Of Leesburg Environmental Services Department Cross-Connection Control Program was developed to ensure compliance with this state mandate.

We urge you to acquaint yourself with the policies and information presented in this manual. It is only through education and commitment of person like yourself that we can control the hazards presented by cross-connections within our public drinking water supply. The water department stands behind this policy and its' enforcement and will offer its' assistance to all who share the responsibility and concern for safe drinking water.

SECTION 1 OVERVIEW

1.1 PURPOSE

The purpose of this policy is to protect the public potable water supply of the City Of Leesburg from the possibility of contamination. To promote the elimination or control of existing cross-connections, actual or potential, between it's customers in-plant plumbing fixtures, industrial piping, reuse system and 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 exactly, this policy is intended to prevent delivered water that has passed beyond the public water system and into the public distribution system of consumers from reentering the public the public distribution system and being subsequently delivered to consumers, and to ensure that persons active in piping design and installation incorporate and install appropriate backflow prevention devices correctly.

1.2 CAUSES OF BACKFLOW

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

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

1. Line repair or break which is lower then a service point. This will allow negative pressure to be created by water trying to flow to a lower point in the system.
2. Undersized piping if water is withdrawn from a pipe at a very high velocity, the pressure in the pipe is reduced and the pressure differential created can cause water to flow into the pipe from a contaminated source.
3. Lowered pressure in water mains due to high water withdrawal rate such as fire fighting, water main flushing or water main breaks.
4. Reduced supply main pressure on suction side of a booster pump.

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 nonpotable system exceeds that in the potable system. The principle causes of backpressure are:

1. Booster pump systems designed without backflow prevention devices.
2. Potable water connections to boilers and other pressure systems without backflow prevention devices.
3. Connections with another system which may at times have a higher pressure.
4. Water stored in tanks or plumbing systems which by virtue of their elevation would create head sufficient to cause backflow if pressure were lowered in the public water system.

SECTION 2 RESPONSIBILITY

2.1 City of Leesburg Water Department Responsibilities

The City of Leesburg Water Department is mandated by the state of Florida:

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

To eliminate or control existing cross-connections, actual or potential, between the consumers in-plant potable water systems and nonpotable water systems, plumbing fixtures, industrial piping systems, and reuse system.

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.

2.2 Customer Responsibilities

It is the responsibility of the customer of the city of Leesburg Water Department to maintain accurate records of tests and repairs made to backflow prevention devices and to provide the Water Department with copies of such records. These records shall be on forms approved by the Water Department.

In the event of accidental pollution or contamination of the consumer'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 the Water Department of the hazardous condition.

In the event of accidental pollution or contamination of the consumer's premises which has reached or might reach the public water supply system then the owner shall immediately notify the Water Department of the hazardous condition.

2.3 Backflow Prevention Device Installer Responsibilities

The installer's responsibility is to make proper installation of backflow prevention devices in accordance with manufacturer's instructions and any additional instructions by the City of Leesburg Water Department.

The installer is also responsible for ensuring that the device is working properly when it is installed. The installer is required to furnish the following information to the Cross-Connection Control Coordinator within two business days after the backflow prevention device is installed:

1. Service address where the device is located
2. Owner
3. Description of device, including location and size
4. Date device was installed
5. Type of service
6. Manufacturer
7. Model number
8. Serial number
9. Test results

If any of the above information is not provided to the Cross-Connection Control Coordinator, the building contractor/backflow prevention device installer is subject to a \$250.00 fine per device. Water service shall not be established until all nine of the above requirements are met.

SECTION 3 DEFINITIONS

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 no pressure receiving vessel. An approved air gap separation shall be a distance of at least two (2) times the diameter of the supply pipe measured vertically above the top rim of the vessel- with a minimum distance of at least one (1) inch.

Approved: "Approved" means that it is accepted by the Director of the Environmental Services Department as meeting an applicable specification of the Environmental Services Department and approved by the Department of environmental Protection, the State of Florida, or their representative.

Atmospheric Vacuum Breaker: An approved device consisting of a check valve and an air inlet to relieve a vacuum. It shall effectively shut off the reverse flow of water when a negative pressure exist on the supply side of the device.

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

AWWA: American Water Works Association

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

Backflow Prevention Device: "Backflow Prevention Device" Shall mean any effective device method, or construction used to prevent backflow into the potable water system. The type of device used should be based on the degree of hazard, either existing or potential, and shall be determined by the Cross-Connection Control Program Coordinator.

Backflow Prevention Device-Approved: The term "Approved Backflow Prevention Device" shall mean a device that has met the requirements of the Environmental Services Department, including one or more of the following standards:

AWWA- C-506 Standard for backflow prevention devices: Reduced pressure principle and double check valve types.

ASSE-1001 Atmospheric type vacuum breakers (not used as a stand alone device)

ASSE-1011 Hose connection vacuum breakers

ASSE-1020 Pressure type vacuum breakers

ASSE-1013 Reduced pressure principle back pressure backflow preventors.

ASSE-1015 Double check valve type back pressure backflow preventors

USC-FCCC University of Southern California Foundation for Cross-Connection Control and Hydraulic research.

Backflow Prevention Device, Certified Technician: The term "Certified Backflow Prevention Device Technician" shall mean a person who has proven his competency to the satisfaction of the City of Leesburg Water Department. Each person who is certified to make competent test or to repair, overhaul and make reports on backflow prevention devices shall be knowledgeable of all applicable laws, rules and regulations and shall have attended and successfully completed a certification program for backflow prevention device testers acceptable to the City of Leesburg Environmental Services Department and have an up to date copy of all current certifications on file with the Cross-Connection Control Program Coordinator.

Back-siphonage: The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply system from any source other then its intended source caused by the reduction of pressure in the potable water system.

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 considerations which would cause or tend to cause a reversal of normal flow.

Contamination: An impairment of the quality of the potable water by any solid, liquid or gaseous substance or mixture to a degree which would create an imminent danger to the public health, or would create an unacceptable taste, odor, or color to the potable water.

Cross-Connection: Any physical connection or arrangement of piping or fixtures between two otherwise separate piping systems one of which contains potable water and the other a non-potable water, industrial fluids reuse water or water of questionable safety, through which or because of which, backflow may occur into the potable water system. A service connection between a public potable water distribution system and a customer's water distribution system which is cross connected to a contaminated fixture, industrial fluid system, reuse water, or with potentially contaminated supply or auxiliary water system, constitutes one type of cross connection. Other types of cross-connections include connectors such as swing connections, removable sections, four-way plug valves, spools, dummy sections of pipe, swivel or change over devices, sliding multi-port tube, solid connections, etc.

Cross-Connection Control Program Coordinator: The City Of Leesburg Environmental Services employee in charge of the Cross-Connection Control Program.

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 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 direction of flow. The closure element (e.g.,clapper) shall be internally weighted or otherwise internally loaded to promote rapid and positive closure.

Hazard-Degree of: The term "degree of hazard" is a qualification of the potential and actual harm that might result from cross-connections with 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. This is determined by the Environmental Services Department.

Hazard-health: the term "health hazard" shall mean an actual or potential threat of contamination or pollution of a physical or toxic nature to the public potable water system or the consumer's potable water system to such a degree or intensity that there would be a danger to health.

Industrial Piping System-Consumer's: The term "Consumer's industrial piping system" Shall mean any system used by the consumer for transmission of or storage of any kind of fluid, solid, or gaseous substance other than an approved water supply. Such a system includes all pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances used to produce, convey, or store substances which are or may be polluted or contaminated.

Reduced Pressure Backflow Preventor: 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 check valves shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to atmosphere, shall operate to maintain the pressure between the check valves less 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.

Reuse System: "Reuse" or "Reclaimed" water shall mean potable water that has been used, treated by the wastewater department and made available to the public for the sole purpose of irrigation of lawns, parks, and golf courses.

Vacuum Breaker Pressure Type: A pressure vacuum breaker is similar to an atmospheric vacuum breaker except that the checking unit, poppet valve is inactivated 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.

Water purveyor: The term "water purveyor" shall mean the owner or operator of the public potable water system supplying an approved water supply to the public. The utility shall be one that is operating under valid permit from the department of environmental protection. As used herein the terms "water purveyor" and City of Leesburg Water Department may be used synonymously.

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 an auxiliary water supply or reuse system. The system or systems may be either a potable water system or industrial piping system.

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

SECTIONS 4 INSPECTIONS

4.1 Frequency

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 a result new cross-connections may be installed and existing protection may be by-passed, removed, or otherwise rendered ineffective; therefore an annual or biennial detailed inspection by the customer of all water usage is required.

4.2 Proposed Construction

All new construction plans and specifications shall be reviewed by the City Of Leesburg Water Department to determine the degree of possible cross-connection hazard. At this time backflow prevention requirements in accordance with this policy will be established. Any new and existing connections to the reuse system are subject to the terms and conditions of this policy.

4.3 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 may be confined to establishing the water usage on the premises, the existence of cross-connections and the availability of auxiliary water supplies or reuse water. On site inspections will be 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.

4.3A Facilities That Require Changes

In the event that a building, facility, home, or business requires the installation of a backflow because of a failed inspection and a potential cross-connection is found, the Cross-Connection Control Program Coordinator will send a letter noting the problem and give a deadline for when a follow-up inspection will be, and when the situation must be corrected by. (usually 15 Days) At the follow up inspection, if the Cross-Connection has been eliminated through the installation of an approved backflow prevention device that has been tested, no further action will be made. In the event that the potential Cross-Connection still exist at the follow-up inspection, a second letter will be issued warning the possible loss of water service if the situation is not corrected.

4.3B Examples of Items that would require a backflow preventor be installed

Section 7 gives a detailed description of Cross Connection Hazards and the required protection. The purpose of 4.3B is to clarify some of the changes that are made at a consumer's water system that would require the installation of a backflow prevention device. The installation of a sprinkler system would require the installation of a backflow prevention device. Premises having a private well or a pump pulling water from a pond or reservoir would require the installation of a backflow prevention device. Premises with water storage tank for the purpose of softening or purifying water would require the installation of a backflow prevention device. The examples in this paragraph are just a few of the situations, there are other situations that could possibly pose a cross connection. To be sure of which device is an approved device please refer to section 7.

Section 5 Testing of Backflow Prevention Devices

It shall be the duty of the customer-user at any premises where reduced pressure backflow prevention devices(RP), double check valve assemblies(DCVA), and pressure vacuum breakers(PVB) are installed to have thorough inspections and operational tests made at least once every year, or more often in those instances where inspections indicate a need. These inspections and tests shall be at the expense of the water user and be performed by the device manufacturer's representative, or by a certified device technician. The water purveyor will notify the customer-user when tests are required and supply the necessary instructions. The test results shall be entered on forms approved by the water purveyor and returned to the water purveyor by the date indicated.

Section 6 Procedures for letters and Penalties for Noncompliance

The Cross Connection Control Program Coordinator will send a written reminder letter notifying the owner or authorized agent that the backflow prevention device or devices must be tested. The letter will give a specified time or deadline for the test to completed. Upon failure of the owner or authorized agent of the owner of the building or premises to have the device tested, a second reminder letter will be sent explaining that if the test is not completed there is a possibility of discontinuance of water service. Upon failure of the owner or authorized agent of the owner of the building or premises to have the device or devices tested after the second letter, a third letter will be sent.

The third letter will be hand carried or sent certified mail according to the conditions set forth under Florida State Statue 162. For those customers/water-users inside of the city limits, the third letter will contain a date and time that the building owner will have to appear before the code enforcement special master. For the utility users outside of the city limits, the third letter will contain the exact date the water service will be discontinued.

6.1 Fines and Reconnection Fees

In the event that water service is discontinued to a building or premises for violation of any part of ordinance 7-120, whether it is inside of or outside of the city limits, there will be a \$40.00 service charge to have the water service reconnected. In addition to any fines imposed by a code enforcement special master.

Failure to comply with the provisions of the cross-connection policy constitutes a violation of the Leesburg Code of Ordinances. Under conditions stated in Florida Statute 162 a 1st offense code violation carries a maximum fine of \$250.00. Each subsequent offense carries a max fine of \$500.00

SECTION 7 CROSS-CONNECTION HAZARDS & REQUIRED PROTECTION

7.1 Facilities

An approved backflow prevention device of the type designed 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:

- A.G. Air Gap separation
- P.V.B Pressure Vacuum Breaker
- D.C.V.A. Double Check Valve Assembly
- R.P.Z. Reduced Pressure Zone Principle backflow Preventor
- D.C.D.V Double check detector valve (used on fire systems)

| <u>TYPE OF FACILITY</u> | <u>MINIMUM TYPE OF PROTECTION</u> |
|--|-----------------------------------|
| Breweries, Distilleries & Bottling Plants | R.P.Z. |
| Car wash with recycling system and or wax educator | R.P.Z. |
| All commercial property | R.P.Z. |
| Chemical plants | R.P.Z. |
| Dairies | R.P.Z. |
| Dentist office | R.P.Z. |
| Fertilizer plants | R.P.Z. |
| Film lab or processing plant | R.P.Z. |
| Food or beverage plant | R.P.Z. |
| Hospitals, clinics, medical buildings | R.P.Z. |
| Irrigation systems | P.V.B., D.C.V.A., R.P.Z. |
| Irrigations systems with automatic fertilizers | R.P.Z. |
| Laboratories | R.P.Z. |
| Laundries and dry cleaning plants | R.P.Z. |

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|---|----------------|
| Machine tool plants | R.P.Z. |
| Metal processing plant | R.P.Z. |
| Morgues or mortuaries | R.P.Z. |
| New residential construction without an irrigation system | D.C.VA. R.P.Z. |
| Nursing homes | R.P.Z. |
| Packing houses or rendering plants | R.P.Z. |
| Paper products plant | R.P.Z. |
| Pesticide companies | R.P.Z. |
| Petroleum processing plant and storage yard | R.P.Z. |
| Pharmaceutical or cosmetic plants | R.P.Z. |
| Piers, docks and waterfront facilities | R.P.Z. |
| Power plants | R.P.Z. |
| Radioactive material plants | R.P.Z. |
| Restaurants | R.P.Z. |
| Reuse systems | R.P.Z. |
| Sand and gravel plants | R.P.Z. |
| Schools | R.P.Z. |
| Swimming pools | R.P.Z. |
| Sewage treatment plants or lift stations | R.P.Z. |
| Tall buildings over three stories | R.P.Z. |
| Veterinary facilities | R.P.Z. |

In addition to and including those types of facilities listed above, an approved backflow prevention device of the type designed shall be installed on each domestic water service connection to any premises containing the following real or potential hazards:

| | |
|---|--------|
| Premises with an auxiliary water system (a well) not connected to public water system | R.P.Z. |
| Premises having a water storage tank, reservoir, pond or similar appurtenance | R.P.Z. |
| Premises having submerged inlets to equipment | R.P.Z. |
| Premises having self-draining yard hydrants, fountains, hose boxes, or similar devices presenting a health hazard | R.P.Z. |

7.2 Installations Requiring Continuous Service

All backflow devices are required to be tested at least once a year, more often if the degree of hazard warrants it. Testing requires a water shut-down usually lasting five to twenty 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 preventors. A parallel installation allows the water service to stay on because while one device is being tested the other is allowing flow to the building.

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

The City of Leesburg Environmental Services Department will not allow an unprotected bypass around a backflow preventor when the device is in need of repair, testing or replacement.

7.3 Exterminating Companies

All tanks, tank trucks and spraying apparatus used to convey pesticides in an exterminating process are required to use only design-protected potable water fill locations. Filling with potable water at unspecified locations or private residents is prohibited. All filling locations will consist of over-head piping arrangements with correctly installed pressure vacuum breakers and an air gap. If for any reason an overhead piping arrangement cannot be used, a reduced pressure zone backflow preventor must be installed on the fill line. All filling locations must be approved by the City of Leesburg Environmental Services Department.

7.4 Types of Backflow Protection for Fire Systems

An approved backflow prevention device of the type designated shall be installed on each fire protection service to any premises where the fire protection system contains any of the following components unless the Environmental Services Department determines that no real or potential health, pollution or system hazard to the public water system exist. Fire systems may be divided into six (6) general classes.

The following are typical:

| | Minimum type of protection |
|---|----------------------------|
| Class 1 a closed automatic fire system, without pumper connection | DCDV |
| Class 2 a closed automatic fire system with pumper connection | DCDV |

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 may be located within 1700 feet of the pumper connection RPZ

Class 4 a closed automatic fire system with a closed pressure tank supply (this class may have a jockey pump interconnected with the domestic water supply and/or an air compressor connection RPZ

Class 5 a closed automatic sprinkler system interconnected with an auxiliary water supply RPZ

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

- A. Self-Draining fire hydrants on premises presenting a health hazard (i.e. chemical plants petroleum storage plants, bulk storage yards stock yards, sewer plants or similar facilities where ground seepage or toxic materials may occur.) RPZ
- 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 or pollution but not toxic materials may occur.) RPZ

7.5 Other Cross-Connection Hazards

Fixtured Inlets or Valved Outlets with hose attachments, which may constitute a cross-connection, shall be protected by the proper approved vacuum breaker (AVB, HBVB, etc.) installed at least six (6) inches above the highest point of usage and located on the discharge side of the last valve. Fixtures with integral vacuum breaker manufactured as a unit may be installed in accordance with their approved requirements

Air Conditioning Cooling Tower- Potable water inlet shall have an approved air gap separation of twice the inside diameter on the inlet line or a minimum of two inches above the flood level rim.

Aspirators and Ejectors- Shall have a PVB on the faucet from which these devices are attached or operated.

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 pressure in the piping system.

Private Wells- Private wells are not legal inside of the City Of Leesburg city limits. Premises outside of the city limits that have a well must have an RPZ installed at the service connection.

Portable Spray and Cleaning Equipment –Any portable pressure spray or cleaning units that have 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 prevention device.

Miscellaneous Uses of Water From Fire Hydrants- The operation of fire hydrants by other than authorized personnel is prohibited.

7.6 Notes

Note: A single check valve will not be accepted as a means to protect the portability of drinking water and therefore may only be used to prevent backflow which would effect 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 replaced by an appropriate approved backflow prevention device.

Note: 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 lines.

Note: Any device, equipment or situation not covered by this cross-connection policy, which may constitute a potential health hazard, will be examined for appropriate treatment by the Environmental Services Department or authorized agent.

SECTION 8 APPENDIX A: AWWA CROSS CONNECTION POLICY

American Water Works Association

Statement of Policy on Cross-Connections

Adopted by the Board of Directors January 26, 1970, revised June 24, 1979, reaffirmed June 10, 1984 and revised January 28, 1990 and January 21 2001.

The American Water Works Association (AWWA) recognizes water purveyors have the responsibility to supply potable water to their customers. In the exercise of this responsibility water purveyors or other responsible authorities must implement, administer and maintain ongoing backflow prevention and Cross-Connection control programs to protect public water supplies from the hazards originating on the premises of their customers and from temporary connections that may impair or alter the water in the public water system. The return of any water to the public water system after the water has been used for any purpose, on the customer's premises or within the customer's piping system is unacceptable and opposed by AWWA.

The water purveyor shall assure that effective backflow prevention measures, commensurate with the degree of hazard, are implemented to ensure continual protection of the water in the public water distribution system. Customers, together with other authorities, are responsible for preventing contamination of the private plumbing system under their control and the associated protection of the public water system.

If appropriate backflow prevention measures have not been taken, the water purveyor shall take or cause to be taken necessary measures to ensure that the public water distribution system is protected from any actual or potential backflow hazards. Such action would include the testing, installation and continual assurance of proper operation and installation of backflow prevention assemblies, devices and methods commensurate with degree of hazard at the service connection or at the point of cross connection or both. If these actions are not taken, water service shall ultimately be eliminated.

To reduce the risk private plumbing systems pose to the public water distribution system, the water purveyor's backflow prevention program should include public education regarding the hazards backflow presents to the safety of drinking water and should include coordination with cross connection efforts with local authorities, particularly health and plumbing officials. In areas lacking a health or plumbing enforcement agency, the water purveyor should additionally promote the health and safety of private plumbing systems to protect its customers from hazards of backflow.

SECTION 9 APPENDIX B: FLORIDA ADMINISTRATIVE CODE

9.1 62-555.360 Cross Connection For Public Water Systems

- (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.
- (2) 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-connections 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 reference documents cited in rules 62-555.330(6) and (7), F.A.C.
- (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.
- (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:
 1. 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 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.
 2. 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 atmosphere, shall operate to maintain the pressure between the checks less than the supply pressure. The unit shall include tightly closing shutoff valves at each end of the device, and each device shall be fitted with properly located test cocks.

3. Atmospheric vacuum breakers- 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 consist 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 exist.
 4. 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.
 5. 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 for 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 weighed or otherwise internally loaded to promote rapid and positive closure.
 6. Residential dual check- A compact unit manufactured with two independent spring actuated check valves. The residential dual check is acceptable only as added back-flow 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.
- (5) Cross Connection Control programs specific to reuse systems defined in chapter 62-610, part III, F.A.C. shall consider the following:
- (a) Enhanced public education efforts towards prevention of cross connections
 - (b) Enhanced inspection programs for portions of the distribution system in areas of reuse for detection and elimination of cross connections.
 - (c) Dual check valves shall be considered acceptable for reducing risks from backflow only at residential properties served by reclaimed water unless:
 - (d) Local codes, ordinances or regulations require a greater level of backflow prevention.
 - (e) Other hazards exists on the property that require a greater level of backflow prevention.

Specific authority 403.861(9), FS

Law implemented 403.861(9), FS

History—new 11/19/1987; formerly 17-22.660; Amended 1/18/1989, 1/3/1991, 1/1/93
Formerly 17-555.360

9.2 62-555.330 Engineering References for Public Water Systems

In addition to the requirement of this chapter, the standards and criteria contained in the following standard water works manuals and technical publications are hereby incorporated by reference and shall be applied in determining whether applications to construct or alter a public water system shall be issued or denied. They do not supersede the specific requirements detailed in these rules. Copies of these technical volumes may be obtained by writing the appropriate publisher at the address indicated.

“Recommended Practice for Backflow Prevention and Cross Connection Control (M14)”,
American Water Works Associations, 1990
American Water Works Association,
6666 W. Quincy Avenue, Denver Co. 80235
“Cross Connection and Backflow Prevention”, 2nd edition, American Water Works
Association, 1974
American Water Works Association
6666 W. Quincy Avenue Denver, Co. 80235
Specific Authority 403.861(9), FS
Law Implemented 403.861(9), FS
History- new 11/19/1987; formerly 17-22.360; amended 1/18/1989, 1/3/1991, 1/1/1993
Formerly 17-555.330, amended 9/22/1999