

# Limestone County Water & Sewer Authority



## 2015 Backflow Prevention and Cross- Connection Control Guidelines

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Adopted by

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Date



# 2015 Backflow Prevention and Cross-Connection Control Guidelines

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# Control of Backflow and Cross-Connections

## SECTION 1 - CROSS CONNECTION CONTROL - GENERAL POLICY

### 1.1 Purpose

The purpose of this policy is:

To protect the public potable water supply of Limestone County Water and Sewer Authority from the possibility of contamination or pollution by isolating within the customer's internal distribution system(s) or the customer's private water system(s) such contaminants or pollutants that could backflow into the public water system; and,

To promote the elimination or control of existing cross-connections, actual or potential, between the customer's potable water system(s) and non-potable water systems, plumbing fixtures, and industrial piping systems; and

To provide for the maintenance of a continuing program of cross-connection control that will systematically and effectively prevent the contamination or pollution of all potable water systems; and

This policy is consistent with and meets the requirements of the following:

- (A) The Federal Safe Drinking Water Act of 1974 (and Amendments of 1986) – Public Law 93-523.
- (B) The U.S. Environmental Protection Agency (EPA) – Cross Connection Control Manual, 1989.
- (C) The Alabama Department of Environmental Management (ADEM), Division 7, Water Supply Program, Code R. 335-7-9 – Cross Connection Requirements, Effective: January 1996.
- (D) Statutory Authority: Code of Alabama 1975, Section 22-23-33, 22-23-49, 22-22A-5, and 22-22A-6.

***This Policy prohibits cross-connections within this potable water system, authorizes LCWSA or an Authorized Agent to make inspections of the customer's premises, requires that cross-connection hazards be corrected and provides enforcement. This Policy expresses clear determination on the part of LCWSA to be operated free of cross-connections that endanger the health and safety of those depending on the public water supply. This Policy is considered to be a sound basis for the control of cross-connection hazards by the operating staff and management of the LCWSA.***

## 1.2 Responsibility

Limestone County Water and Sewer Authority (LCWSA) and its Authorized Agents shall be responsible for the protection of the public water distribution system from contamination or pollution due to the backflow of contaminants or pollutants through the water service connection. If, in the judgment of LCWSA or its Authorized Agent an approved backflow-prevention assembly is required (at the customer's water service connection; or within the customer's private water system; or any other intended point of connection, whether temporary or permanent) for the safety of the water system, LCWSA or its Authorized Agent shall give notice in writing to said customer to install an approved backflow-prevention assembly(s) at specific location(s) on the premises where use is intended. The customer shall immediately install such approved assembly(s) at his/her own expense; failure, refusal, or inability on the part of the customer to install, have tested, and maintain said assembly(s) shall constitute grounds for discontinuing water service to the premise until such requirements have been satisfactorily met.

The customer's responsibility starts at the point of delivery from the public water system and includes all of his/her internal distribution system(s) or private water system(s). The customer shall certify that any permanent and/or temporary backflow prevention assembly shall meet all applicable requirements and must be tested and maintained accordingly. The customer shall maintain accurate records of tests and repairs made to his/her backflow-prevention assembly(s) and provide LCWSA with copies of such records. The records shall be on forms approved and/or provided by LCWSA which can be down-loaded from the LCWSA website.

All customers are required to furnish, install, and maintain the required backflow-prevention device at their own direct expense. The customer shall indemnify LCWSA from any loss or damage that may directly or indirectly occur by the installation of any device or assembly.

In the event of accidental pollution of the public potable water supply, the customer shall promptly take steps to confine further spread of the contamination or pollutant within the customer's premises and immediately notify LCWSA. LCWSA will take the following actions to protect the health of the distribution system and customers:

- (A) Isolate the lines containing any contaminant from the distribution system;
- (B) Inform customers with contaminated lines not to consume or use the water;
- (C) Report contamination to the Local ADEM Field Office;
- (D) Determine and separate the cross-connection allowing the backflow and contamination;
- (E) Remove contamination from distribution lines;
- (F) Test and ensure lines meet safety regulations for safe water;
- (G) Return service to customers once water is safe;
- (H) Document the details of the incident including cause, isolation, and correction;
- (I) Continue to survey and inspect system for similar situations that may allow backflow.

## **SECTION 2 – DEFINITIONS**

### **2.1 Approved**

Accepted by LCWSA as meeting applicable specifications of the backflow and cross-connection program

### **2.2 Authorized Agent**

The person(s) with the authority and responsibility for the implementation of an effective backflow and cross-connection control program and for the enforcement of the provisions of this policy. Any authorized agent will be an employee of LCWSA, or a duly selected consultant or contractor for LCWSA and a Certified Backflow Technician.

### **2.3 Auxiliary Water Supply**

Any water supply on or available to the premises other than the water purveyor's approved water supply. The auxiliary waters may include water from another water purveyor's public potable water supply or any natural source(s), such as a well, spring, river, stream, harbor, and so forth; used waters; 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.

### **2.4 Backflow**

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

### **2.5 Backflow Preventer**

An assembly or means designed to prevent backflow.

#### **(A) Air Gap - AG**

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. The vertical, physical separation must be at least twice the diameter of the water supply outlet, never less than 1 inch.

#### **(B) Dual Check Valve - DC**

A device composed of two independently acting check valves, and internally forced loaded to normally closed position.

#### **(C) Atmospheric Vacuum Breaker - AVB**

A 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 exists on the supply side of the device.

**(D) Pressure Vacuum Breaker - PVB**

A device similar to an atmospheric vacuum breaker except that the checking unit “poppet valve” is activated by a spring. It does not require a negative pressure to react and can be used on the pressure side of a valve.

**(E) Double Check Valve Assembly - DCV**

An assembly consisting of two internally loaded check valves, either spring-loaded or internally weighted installed as a unit between two tightly closing resilient-seated shutoff valves and fittings with properly resilient-seated test cocks. This assembly shall only be used to protect against a non-health hazard (that is, a pollutant).

**(F) Detector Double Check Valve Assembly – DDCV**

Same assembly as above equipped with a bypass containing a low flow meter and an approved double check valve assembly. The meter shall register accurately for very low rates of flow up to 3 gpm and shall show a registration for all rates of flow. This assembly is use on unmetered, non-health hazard fire line installations.

**(G) Reduced-Pressure Zone Assembly - RPZ**

An assembly consisting of two independently acting check valves together with a 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. This assembly is used to protect against potential health hazards.

**(H) Detector Reduced-Pressure Zone Assembly – DRPZ**

Same assembly as above equipped with a bypass containing a low flow meter and an approved reduced pressure zone assembly. The meter shall register accurately for very low rates of flow up to 3 gpm and shall show a registration for all rates of flow. This assembly is use on unmetered fire line installations with a potential health risk.

**2.6 Backpressure**

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

**2.7 Back siphon**

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

**2.8 Certified Backflow Technician**

A person who has attended and successfully completed a Certification Program for Backflow Technicians acceptable to LCWSA, has a copy of the certification on file at LCWSA, and has a letter of approval from LCWSA. Each person who is certified to make competent tests and/or repairs or overhaul and make reports on backflow prevention assemblies shall be familiar with applicable state and local laws, rules and regulations.



## **2.9 Contamination**

An impairment of the quality of the potable water by any solid, liquid, or gaseous compound or mixtures to a degree which, in the opinion of LCWSA, would create an imminent danger to the public health, or would create an unacceptable taste, odor or color in the potable water.

## **2.10 Cross-Connection**

A connection or potential connection between any part of a potable water system and any other environment containing 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 taste, color or add odor to the water or would otherwise cause contamination in the potable water system.

## **2.11 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 protection commensurate with the degree of hazard.

## **2.12 Cross-Connection Control by Containment**

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

## **2.13 Degree of Hazard**

Is a qualification of what actual or potential harm may result from cross-connection within the water using facility. Establishing the degree of hazard is directly related to the type and toxicity of contaminants that could enter the public water supply system.

### **(A) Health Hazard**

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

### **(B) Plumbing Hazard**

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

### **(C) Non-Health 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.

**(D) System Hazard**

An actual or potential threat of severe damage to the physical properties of the public potable water system or the customer’s potable water system or of the pollution or contamination of said systems such that it would have a protracted effect on the quality of the potable water in the system.

**2.14 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 or system hazard if introduced into an approved water supply. This may include, but not limited to, polluted or contaminated waters; all types of process waters and used waters originating from the public potable water system that may have deteriorated in sanitary quality; chemicals; plating acids and alkalis; 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, and so forth; oils, gases, glycerin, paraffin, caustic and acid solutions, and other liquid and gaseous fluids used in industrial or other purposes for fire-fighting purposes.

**2.15 LCWSA**

Limestone County Water and Sewer Authority

**2.16 Point of Delivery**

The point that the public water system ends and the customers private water system begins, which is the first plumbing fitting downstream of the billing water meter.

**2.17 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.

**2.18 Service Connection**

The terminal end of a service connection from the 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. If a meter is installed at the end of the service connection, then the service connection shall mean the downstream end of the meter. There should be no unprotected takeoffs from the service line ahead of any meter or backflow-prevention assembly located at the point of delivery to the customer’s water system. Service connections 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.

**2.19 Water – Potable**

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

**2.20 Water – Non-potable**

Water that is not safe for human consumption or that is of questionable quality.

**2.21 Water – Used**

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

**2.22 Water Purveyor**

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 a valid permit from ADEM. As used herein, the terms water purveyor and Limestone County Water and Sewer Authority (LCWSA) shall be used synonymously.

**SECTION 3 – FACILITIES AND ASSEMBLIES**

**3.1 Facilities and Assemblies**

An approved backflow-prevention assembly, 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. All assemblies and their installation must have prior approval by LCWSA.

- AG** – Air Gap Separation
- DC** – Dual Check Valve
- RPZ** – Reduced Pressure Zone Assembly
- DCV** – Double Check Valve Assembly
- PVB** – Pressure Vacuum Breaker
- AVB** – Atmospheric Vacuum Breaker
- DRPZ** – Detector Reduced Pressure Zone Assembly
- DDCV** – Detector Double Check Valve Assembly

**TYPE OF FACILITY**

**MINIMUM TYPE OF PROTECTION**

Breweries, Distilleries, Bottling Plants.....	<b>DCV</b>
Car Wash with Recycling System and/or Wax Educator .....	<b>RPZ</b>
Chemical Plants .....	<b>RPZ</b>
Concrete Plants.....	<b>RPZ</b>
Dairies and Commercial Cattle Farms.....	<b>RPZ</b>
Dentist Office .....	<b>RPZ</b>
Fertilizer Plants.....	<b>RPZ</b>
Film Lab or Processing Plant.....	<b>RPZ</b>
Fire Protection .....	<b>DDCV or DRPZ</b>

Food Plant.....	<b>DCV</b>
Hospital, Clinics, Medical Buildings.....	<b>RPZ (Parallel)</b>
Irrigation Systems.....	<b>RPZ, AG, or PVB</b>
Laboratories.....	<b>RPZ</b>
Laundries & Dry Cleaners.....	<b>RPZ</b>
Machine Tool Plants (Health or System Hazard).....	<b>RPZ</b>
Machine Tool Plants (Pollution Hazard).....	<b>DCV</b>
Metal Plating Plants.....	<b>RPZ</b>
Morgues and Mortuaries.....	<b>RPZ</b>
Nursing Homes.....	<b>RPZ</b>
Packing Houses or Rendering Plants.....	<b>RPZ</b>
Pesticides (Exterminating Companies).....	<b>RPZ</b>
Petroleum Processing Plants.....	<b>RPZ</b>
Petroleum Storage Yards.....	<b>RPZ</b>
Pharmaceutical or Cosmetic Plants.....	<b>RPZ</b>
Piers, Docks or Waterfront Facilities.....	<b>RPZ</b>
Poultry Plants or Poultry Houses.....	<b>RPZ</b>
Power Plants.....	<b>RPZ</b>
Radioactive Material Plants.....	<b>RPZ</b>
Restaurants.....	<b>DCV</b>
Sand and Gravel Plants.....	<b>DCV</b>
Schools with Laboratories.....	<b>DCV and AVB</b>
Swimming Pools with Piped Fill Line.....	<b>AG at pool</b>
Sewer Treatment Plants.....	<b>RPZ</b>
Sewer Pumping Stations.....	<b>RPZ</b>
Buildings over three stories.....	<b>RPZ</b>
Veterinary Establishments.....	<b>RPZ</b>

Situations which are not covered in this policy shall be evaluated on a case-by-case basis and appropriate backflow-prevention shall be determined by LCWSA. If, in the opinion of the LCWSA, a premise presents pollution or contaminant risk (actual or potential) to the public potable water supply system, LCWSA shall require the customer to isolate such premises through the use of appropriate backflow-prevention assemblies.

Typical backflow prevention assembly details are provided in the latest edition of the LCWSA Policies and Procedures for Development/Standard Water & Sewer Specifications and Design Criteria and is available for review on the LCWSA website.

### **3.2 Exterminating, Paving, Construction, Agriculture Companies or Individuals**

All tanks, tank trucks, and spraying apparatus used to convey any chemical or transport water are required to have backflow protection, preferably an air gap (**AG**). Filling said containers with potable water by a company or a private individual, from a fire hydrant, flushing location, or private residence must be approved by LCWSA. If filling is authorized at a designated location, the potable water system will be protected by an air gap or a reduced pressure zone (**RPZ**) backflow-prevention assembly. All filling locations and containers

must be approved by LCWSA. Operators shall take extreme caution in filling containers to insure that any hose or conveyance system shall maintain an air gap such that no part of the hose or conveyance system shall be submerged.

### 3.3 Fire Systems

An approved backflow-prevention assembly of the type designated shall be installed on each fire protection service to any premises where fire protection system contains any of the following components. Fire systems may be divided into six (6) general classes. LCWSA assumes no responsibility for determining flows or pressures associated with fire system design. All calculations shall be performed by the developer's engineer. The following are typical:

#### CLASS 1 – **DDCV required**

Direct connections from public potable water mains only; no pumps, tanks or reservoirs; no physical connection from other water supplies; no antifreeze or other additives of any kind; all sprinkler drains discharging to atmosphere, dry wells, or other safe outlets.

#### CLASS 2 – **DDCV required**

A closed automatic fire system with pumper connection.

#### CLASS 3 – **DRPZ required**

A closed automatic fire system with a pumper connection on an auxiliary water supply on or available to the premises; or an auxiliary water supply which can be located within 1700 feet of the pumper connection.

#### CLASS 4 – **DRPZ required**

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).

#### CLASS 5 – **DRPZ required**

A closed automatic sprinkler system connected with an auxiliary water supply.

#### CLASS 6 – **DRPZ required**

Fire system used for the combined purposes of supplying the automatic sprinklers, hose lines, fire hydrants and standpipes and being used for industrial purposes.

(A) Self-Draining Fire Hydrants on premises, 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). **DRPZ required**

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

In the case of backflow-prevention devices on fire system, it is recommended that the Fire Marshal be contacted before service is discontinued, to prevent harm to anyone in case a fire occurred in a public building.

## **SECTION 4 – PLANS, SPECIFICATION, AND INSPECTION BY LCWSA**

### **4.1 Plans and Specifications**

All construction plans and specifications and/or modifications on any industrial or commercial facilities shall be reviewed by the Planning and Construction Department of LCWSA to determine the degree of possible cross-connection hazards. At this review, backflow prevention requirements in accordance with this policy will be made.

All backflow-prevention assemblies required herein shall be a model and size approved by LCWSA. The term approved backflow-prevention assembly shall mean an assembly that has been manufactured in full conformance with the standards established by the American Water Works Association titled:

*ANSI/AWWA C510-89 – Standard for Double Check Valve Backflow-Prevention Assembly, and AWWA C511-89 – Standard for Reduced-Pressure Principle Backflow-Prevention Assembly, and have met completely the laboratory and field performance specifications of the Foundation for Cross-Connection Control and Hydraulic Research (FCCCHR) of the University of Southern California established by “Specification of Backflow-Prevention Assemblies” – Sec.10 of the most current issue of the *Manual of Cross-Connection Control*.*

Said AWWA and FCCCHR standards and specification have been adopted by LCWSA. Final approval shall be evidenced by a “Certificate of Approval” issued by an approved testing laboratory certifying full compliance with said AWWA standards and FCCCHR specifications.

The following testing laboratories have been qualified by LCWSA to test and certify backflow preventers: Foundation for Cross-Connection Control and Hydraulic Research (FCCCHR), University of Southern California, American Society of Sanitary Engineers (ASSE), American Water Works Association (AWWA) and United Laboratories (UL). At least one of the above laboratories must be on the name plate of each approved backflow.

### **4.2 Inspection by LCWSA on “As Constructed” Facilities**

A survey will be made by LCWSA on the customer’s presently or newly installed water system in order to determine the degree of hazard to the public potable water system. This survey need not be a detailed inspection of the location or the disposition of the water lines, but should be confined 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 shall be made of new and existing facilities and should any noted devices, assemblies or plumbing changes are required, a follow up inspection will be made of the same facilities at a later

date. For all premises where security requirements or other restrictions make it impossible or impractical to perform a complete in-plant cross-connection survey, the public water system shall be protected with an approved reduced pressure zone backflow-prevention assembly. If a residential or non-residential establishment (with a testable assembly(s)) changes ownership (name listed on water bill), irrigation system installed, or well is drilled within the property, an inspection and test must be performed.

## **SECTION 5 – INSTALLATION CRITERIA**

### **5.1 Assemblies**

Reduced Pressure Zone (**RPZ**) assemblies should never be subject to flooding and therefore should:

- (A) Never be located in a pit or other area subject to flooding.
- (B) Avoid piped drains, but if this cannot be avoided, the drain must handle the maximum design discharge of the unit and the drains discharge must be 12 inches higher than the surrounding ground level or maximum flood level. The manufactures drain assembly, sized for the installed unit, will be the only accepted discharge drain.
- (C) If installed inside a building, drain shall be plumbed directly through the outside wall or drained to a floor drain that can adequately handle the maximum design discharge from the unit.
- (D) The lowest part of the relief valve discharge port should be a minimum of 12 inches above the maximum flood level.

All assemblies should be installed where units can be easily tested and repaired.

All assemblies installed in a removable enclosure (hot box), must be a minimum of 6 inches from each wall and 12 inches above maximum flood level.

All assemblies installed in stationary enclosures should have at least 2 feet of clearance on each side of the assembly to facilitate testing and servicing. Adequate drainage must be provided.

All assemblies should not be installed higher than 5 feet from the floor/ground to the center line of the assembly unless safe permanent access is provided for testing and servicing.

The pipelines should be thoroughly flushed to remove foreign material and debris before installing assembly.

Installation of backflow-prevention assemblies will not allow any unprotected or uninspected connections in front of the backflow prevention assembly.

Backflow-prevention assemblies should be installed with unions and isolation valves on both ends of the assembly to allow removal of the assembly for repair or replacement.

Provisions should be made to protect the assembly from freezing. Insulation materials should not restrict the relief valve discharge or accessibility to test cocks or name plate on the unit. All enclosures should be designed for adequate draining for the relief valve.

The relief valve of an RPZ assembly should never be plugged, restricted or solidly piped to a drain, ditch or pump. Manufactures rigidly secured air gap funnel may be used to direct discharge away from the unit.

The test cocks, valve stems or name plate should not be painted and their accessibility, operation, or legibility should not be hampered.

For applications where water temperatures exceed 110 degrees F (43 degrees C) only approved hot water assemblies are to be used.

Prior to completing the installation, temperature pressure relief valves on heating vessels should be properly installed and in good working order. If needed, thermal expansion tanks should be installed.

No unprotected bypass or connections are to be made between the assembly and meter.

DCV and DDCV assemblies can be installed in an approved vault or in an above ground enclosure. The vault must meet be approved by LCWSA and meet the above installation and clearance requirements.

All assemblies, after installation, shall be tested by a Certified Backflow Technician and inspected by LCWSA before being put into permanent service.

The customer is responsible to make sure an assembly is working and installed properly and is required to furnish the following information to LCWSA immediately after a Reduced Pressure Zone (**RPZ or DRPZ**), Double Check Valve (**DCV or DDCV**), or Pressure Vacuum Breaker (**PVB**) is installed:

- (A) Service address where device is located
- (B) Property owners name
- (C) Description of assembly, location on property and size
- (D) Date of installation
- (E) Type of assembly
- (F) Model number
- (G) Serial number
- (H) Paperwork from testing company

The customer is urged to notify LCWSA when they are ready to begin installation of an RPZ or DCV type assembly. An LCWSA representative will visit the site to detail how the units must be installed to achieve the desired protection and to minimize maintenance and testing problems.



## 5.2 Installations Requiring Continuous Service: Parallel Installation

All backflow-prevention assemblies with test cocks are required to be tested, with a minimum frequency, once every 12 months. 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 service from two separate meters, provisions shall be made for a “parallel installation” of backflow-prevention assemblies. All parallel installation will meet all installation requirements as above.

During testing, one assembly is left on while the other is being tested. Usually the two devices are sized smaller than the service line, e.g. one 12 inch assembly would be sized with two 10 inch assemblies or one 8 inch assembly would be sized with two 6 inch assemblies.

Multi-story buildings which have a number of flush-o-meter toilets should be equipped with parallel assemblies. Experience has shown if the water supply is shut off to this type of building, flush-o-meters have to be reset manually.

LCWSA will not accept an unprotected bypass around a backflow-prevention assembly when the assembly is in need of testing, repair or replacement.

*Note: Existing assemblies not meeting the minimum installation requirements above, with the exception of being installed in an area that may allow flooding of the assembly, may be allowed variances by LCWSA. However, no variance may be allowed that will compromise the protection of the assembly or that will allow contaminants in the potable water system. All variances will be documented and kept on file for the life of the assembly.*

*Note: 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 that 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 with an appropriate backflow-prevention assembly.*

## SECTION 6 – PERFORMANCE EVALUATIONS

Performance evaluations must be performed on every assembly at least annually. A Test and Maintenance Report (TMR) shall be completed and returned to LCWSA before an assembly can be approved for service or deemed **PASSED**. The TMR is required to be completed for each assembly installed, tested and/or repaired. All TMR's will be kept on file at LCWSA for at least seven (7) years.

All backflow-prevention assemblies must be deemed **PASSED** to remain approved and acceptable protection for the public potable water supply.

All backflow-prevention assemblies must pass each part of the Performance Evaluation. If

any test does not meet the minimum requirements set forth in the testing procedure, the assembly is deemed **FAILED**. If conditions around the assembly do not allow the assembly to be tested, the assembly fails the evaluation. (Examples would include assembly is submerged, test cocks missing or plugged, relief valve discharging)

Test kits must be certified annually from a manufacturer-approved entity. Proof of annual test kit certification and approved tester certification must be current and on file for each tester by LCWSA for seven (7) years.

All correspondence and documentation pertaining to each backflow-prevention assembly will be kept on file by LCWSA for at least seven (7) years. This includes, but is not limited to, test results, repair reports and installation records.

Assemblies must be tested when installed and after each repair.

All backflow-prevention assemblies, and pressure vacuum breakers (**PVB**) shall have thorough inspections and operational test made at least every 12 months 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 a Certified Backflow Technician. LCWSA will attempt to notify the customer-user when tests are required and supply necessary test forms. These forms will be completed and returned to LCWSA by the date indicated.

#### **Reduced Pressure Zone Assembly:**

- (A) Relief valve must have an opening point of 2.0 psi or greater.
- (B) Backpressure on check valve #2 must hold tight.
- (C) Static pressure drop across check valve #1 must be 3.0 psi or greater than the relief valves opening point.
- (D) Shutoff valve #2 must hold tight.
- (E) Static pressure drop across check valve #2 must be 1.0 psi or greater.

#### **Double Check Valve Assembly:**

- (A) Static pressure drop across check valve #1 must be 1.0 psi or greater.
- (B) Backpressure on check valve #2 must hold tight.
- (C) Shutoff valve #2 must hold tight.
- (D) Static pressure drop across check valve #2 must be 1.0 psi or greater.

## **SECTION 7 – REPAIRS**

Should a backflow-prevention assembly be found defective or have a status of **FAILED**, LCWSA will require the assembly to be repaired promptly with manufacturer's specified parts, in accordance to manufacturer's suggested procedures, and placed in proper operating condition within 10 days for high hazard situations and within 60 days for low hazard areas. In the event of a catastrophic failure (i.e. both checks fail, assembly is busted) water service

may be terminated until repairs are made. The owner will be held responsible for maintaining the backflow-prevention device. The owner of an assembly needing repair or maintenance will be permitted to do the work, if such owner is properly qualified or the owner may elect to secure the services of a Certified Backflow Technician.

After each repair, the assembly must be tested and have a **PASSED** status on the TMR.

It shall be the responsibility of the customer to maintain in good working condition all backflow-prevention assemblies located on premises. All tests, repairs, overhauls, and/or replacements shall be at the expense of the customer.

## **SECTION 8 – TERMINATION OF SERVICE**

Failure, refusal or inability on the part of the customer to meet LCWSA's time schedule for installation of said backflow-prevention assemblies shall constitute grounds for discontinuation of water service until such assemblies have been properly installed or maintained.

### **8.1 Remedies of LCWSA**

- (A) **NOTICE** – In the event the water customer is found to have willfully violated or failed to comply with any provision of this program, LCWSA shall send a notice of termination to the customer of intent to terminate service at least 5 days in advance and give the customer an opportunity to be heard before service is terminated.
- (B) **CONCILIATION MEETING** – LCWSA may, but shall not be required to, invite the customer, or representative of the customer, to a conciliation meeting to discuss violations and methods of correcting the cause of the violation(s). If LCWSA and the customer agree to the appropriate remedial and preventative measures, they shall commit such agreement in writing with provisions for a reasonable compliance schedule. If no agreement can be met, LCWSA or its Authorized Agent will determine the appropriate measures to be taken to correct the violation(s), and that determination is final and will be carried out on LCWSA's schedule.
- (C) **EMERGENCY TERMINATION** – In the event of an actual or threatened backflow into the water system, LCWSA shall immediately terminate the service to abate the condition without notice. Such service may be restored by LCWSA as soon as the emergency situation has been abated and proper preventative measures have been taken.
- (D) **SERVICE DISCONNECTION** – If the service is discontinued pursuant to this section, LCWSA shall continue disconnection until such time as the customer is in compliance with the provisions of this program. Re-connection shall be at the discretion of LCWSA and at the customer's expense.

*Note: Any device, assembly, equipment, or situation not covered by this policy, which may constitute a potential health hazard, will be examined for appropriate treatment by LCWSA.*

*Note: If any provision, paragraph, word, section or article of this resolution is invalidated by any court of competent jurisdiction, the remaining provisions, paragraphs, words, sections, and chapters shall not be affected and shall continue in full force and effect.*

G.Hyche AL3652

## Test & Maintenance Report for Backflow Prevention Devices

LCWSA Fax Number: 256-233-6475

Office Number: 256-233-6445

New Installation:      Yes  \_\_\_\_\_      No  \_\_\_\_\_

Service# \_\_\_\_\_ ----- Meter# \_\_\_\_\_

■ Certify Proper Installation (Tester's Initials) \_\_\_\_\_

Location of Device Tested

Name of Premise: \_\_\_\_\_

Street Address: \_\_\_\_\_

Briefly describe where the device is placed on the property: \_\_\_\_\_

Type of Device Tested:      Double Check Valve:      Reduced Pressure Zone:

tGap: |

Pressure Vacuum Breaker:

Manufacture: \_\_\_\_\_ Size: \_\_\_\_\_

Model Number: \_\_\_\_\_ Serial# \_\_\_\_\_

Time: \_\_\_\_\_ Line Pressure (when test was performed on line) PSI: \_\_\_\_\_

Please note s rin pressures for Check #1 and Check #2

# 1 Check Valve	# 2 Check Valve	Reduced Pressure Zone Relief Valve
Closed Tight: D _____	Closed Tight: O _____	Open @ PSID _____
Leaked: O _____	Leaked: O _____	Failed to Open: L _____

Confirmation was Confirmed	PSID Static State: _____
	PSID @ Opening: _____
	Difference: _____

Remarks: \_\_\_\_\_

■ HEREBY CERTIFY THAT THIS DATA IS ACCURATE AND REFLECTS THE PROPER OPERATION AND MAINTENANCE OF THE UNIT.

Certified Testing Company: \_\_\_\_\_

Certified Tester Signature: .. \_\_\_\_\_ Tester# \_\_\_\_\_ Date: \_\_\_\_\_

Tester's Certification Expiration Date: \_\_\_\_\_ Calibration Date: \_\_\_\_\_

Limestone County Water and Sewer Authority  
PO Box 110  
Athens, AL. 35612

TEST RESULTS MUST BE SUBMITTED IMMEDIATELY TO LIMESTONE COUNTY WATER AND SEWER AUTHORITY  
FAILURE TO SUBMIT TEST RESULTS MAY RESULT IN TERMINATION OF WATER SERVICE TO CUSTOMER.