

APPENDIX 3

LANCASTER COUNTY WATER & SEWER DISTRICT (LCWSD) CROSS-CONNECTION CONTROL PROGRAM

I. AUTHORITY

A. LCWSD's Cross-Connection Control Program was created in accordance with The State Safe Drinking Water Act (S.C. Code Ann. 44-55-10, et al and the Primary Drinking Water Regulations promulgated by the South Carolina Department of Health and Environmental Control (Regulation 61-58.7).

B. This program was adopted by LCWSD authorizing the creation and operation of a cross-connection control program.

C. Nothing herein shall be construed to conflict with any applicable federal and state laws or regulations or with any other existing ordinances, codes, or any amendments thereto.

II. PURPOSE

A. To protect and maintain LCWSD's water distribution system so as to continuously provide safe and potable water in sufficient quantity and pressure and free from potential hazards to the health of its consumers.

B. To locate and facilitate the elimination of any existing unprotected cross-connections between LCWSD's water supply system and any other water system(s), sewers or water lines, or any piping systems or containers holding polluting substances.

C. To establish and maintain a program of cross-connection control which will effectively prevent the contamination or pollution of the potable water system by cross-connection.

III. DEFINITIONS

Air Gap means a physical separation sufficient to prevent Backflow between the free-flowing discharge end of the LCWSD's water system and any other system, vessel, vat, or tank. This physical separation must be a minimum of twice the diameter of the supply side pipe diameter, but never less than one (1) inch. This method or device is approved for use on High Hazard category cross connections.

Approved means accepted by the Manager of the LCWSD or their authorized representative as meeting the requisite standards or specifications, or as suitable for the proposed use.

Atmospheric Vacuum Breaker means a device which prevents back-siphonage by creating an atmospheric vent in the line when the supply line pressure falls to atmospheric (zero) or below, thereby creating a vacuum or negative pressure. This device is approved for use on Low and Medium Hazards where only back-siphonage is being addressed.

Backflow means the undesirable reversal of the flow of water or other liquids, mixtures, gases, or other substances into or towards the distribution piping of a potable supply of water from any source or sources.

Backflow Preventer means any device or means approved by SCDHEC for use in preventing Backflow under its prescribed limited conditions and design for use. These devices consist of: Air Gap, Reduced Pressure Backflow Preventor, Double Check Valve Assembly, Pressure Vacuum Breaker, Atmospheric Vacuum Breaker, Hose Bibb Vacuum Breaker, Residential Dual Check, Double (or Dual) Check with Intermediate Atmospheric Vent.

Certified Tester means any person holding an up-to-date Backflow prevention device tester certification card issued by SCDHEC.

Containment means a method of Backflow prevention which requires a Backflow Preventer at the water service connection entrance (usually immediately downstream of the water meter).

Contaminant means any physical, chemical, biological, or radiological substance or matter in water, impairing the quality of the water.

Cross Connection means any actual or potential connection or structural arrangement between LCWSD's water supply and any other source or system through which it is possible to introduce into any part of LCWSD's water system any water, industrial fluid, gas or substance other than the intended potable water with which the system is supplied. Bypass arrangements, jumper connections, removable sections, swivel or changeover devices and other temporary or permanent devices through which or because of which Backflow can or may occur are considered to be cross-connections.

Double Check Valve Assembly means an assembly of two (2) independently operating spring or weight loaded check valves with tightly closing shut off valves on each end of the check valves, plus properly located test cocks for the testing of each check valve. This device is approved for use on Low Hazard category cross-connections.

Double (or Dual) Check Valve With Intermediate Atmospheric Vent means a device having two (2) spring loaded check valves which are separated by an atmospheric vent. This device is only available in small sizes (3/4"). It has no test cocks or gate valves and is usually used for internal protection. This device is approved for Low to Medium Hazard category cross-connections.

High Hazard means an actual or potential threat to LCWSD's water supply of a physical or toxic nature to such a degree of intensity that there would be a danger to public health.

High Hazard Residential Lawn Irrigation System means any residential lawn irrigation system that includes chemical additions or is also connected to another water source which is not an approved public water system.

Hose Bibb Vacuum Breaker means a device which is permanently attached to a hose bibb, and which acts as an atmospheric vacuum breaker. It is normally approved for Low Hazard category cross-connections, back-siphonage only.

Low Hazard means that degree of hazard which would not constitute a threat to health, but which may cause an actual or potential threat to the physical properties of the water sufficient to cause a nuisance or be aesthetically objectionable.

Low Hazard Residential Lawn Irrigation System means any residential lawn irrigation system that is directly or indirectly connected to the public water system and does not meet the High Hazard Residential Lawn Irrigation definition.

Manager means the District Manager of LCWSD.

Owner means any person who has legal title to, or license to operate or reside in a property upon which a cross-connection inspection is to be made or upon which a cross-connection is present or suspected of being present.

Person means an individual, partnership, co-partnership, cooperative, firm, company, public or private corporation, political subdivision, agency of the State, trust, estate, joint structure, company, or any other legal entity or their representative, agent or assigns.

Pressure Vacuum Breaker means a device which is identical to the Atmospheric Vacuum Breaker except that it is equipped with two tightly closing shut-off valves and an internal spring which allows it to be installed under continuous pressure. This device is only approved for use against back-siphonage Backflow where Low to Medium category Hazards exists.

Reduced Pressure Backflow Preventer means an assembly consisting of two (2) independently operating approved check valves with an automatically operating differential relief valve located between the check valves. Tightly closing shut-off valves are located on each end of the check valves, and properly located test cocks are positioned for the testing of the check valves and the relief valve. This device is approved for High Hazard category cross connections and may never be installed in a location or manner which will subject the device to possible flooding or allow the relief valve to become submerged under water.

Residential Dual Check means a device with two (2) independently operating check valves. This device is not equipped with shut-off valves or test cocks and is approved for Low Hazard category cross connections. Residential dual checks are normally employed as a containment device installed at or in the service connection meter box.

SCDHEC means the South Carolina Department of Health and Environmental Control, including personnel authorized to act on behalf of the Department.

IV. ADMINISTRATION

- A. LCWSD is authorized to operate a Cross-Connection Control Program pursuant to and in accordance with applicable State law and SCDHEC regulations.
- B. The Owner shall allow his or her property to be inspected for possible cross-connections and shall follow the provisions of LCWSD's Cross-Connection Control Program and SCDHEC regulations.
- C. The Manager has the primary responsibility of enforcing the Cross-Connection Control Program and to maintain all records pertaining thereto.
- D. If the Manager requires LCWSD's water supply to be protected by the containment approach, then the Owner shall be responsible for water quality beyond the outlet end of the containment device and shall implement a program of internal protection which will address each offending fixture within his or her facility for the purpose of protecting the health of his or her employees as well as the safety/potability of his or her product.

V. REQUIREMENTS

A. New Construction

- 1. The Manager, or his or her designee, shall conduct on-site evaluations, inspections, interviews, and/or review of plans in order to determine the degree of hazard in question and shall prescribe Backflow prevention measures (devices) which are commensurate with the degree of hazard in question. In cases where increased hazards do not dictate the need for stronger protection, a minimum of a residential dual check shall be required.
- 2. Any newly installed double check valve assembly or reduced pressure Backflow preventer shall be tested by a certified tester prior to any final approval of occupancy being issued by the Manager or their designee.

B. Existing Premises (Facilities)

1. Utilizing water Customer billing records, telephone calls, personal interviews and inspections, the Manager or his designee shall conduct a survey of all existing non-residential Customers in order to determine which facilities will be required to install protective devices, the type of protective devices to be required and the length of time allowed for installation of the required devices.
2. Any newly installed reduced pressure Backflow preventer or double check valve assembly required on any existing facility shall be tested by a certified tester upon installation and once annually thereafter. A firm but reasonable time period is to be established by the Manager for the completion of the required installation and testing of the prescribed devices.
3. The Manager or his or her designee shall not allow any existing cross-connection to remain unless it is protected by an approved Backflow preventer which is commensurate with the degree of hazard in question. The Manager or his designee has the authority to decide whether the Backflow prevention device must be installed at the service connection meter (containment approach), or whether the cross-connection in question may be adequately eliminated or protected within the facility at or near its point of origin (internal protection approach).
4. Reasonable but firm time schedules shall be implemented by the Manager or his designee for compliance with testing and installation requirements.
5. The owner shall be responsible for meeting all compliance schedules, as well as for all fees and required device testing.

VI. HAZARDS

- A. LCWSD recognizes the threat to LCWSD's water system arising from cross-connections. All threats shall be classified by LCWSD as a "High", "Medium", or "Low" hazard and shall require the installation of the appropriate approved Backflow prevention devices which are consistent with SCDHEC regulations and LCWSD's Cross-Connection Control Program.
- B. To determine the nature of existing or potential hazards, LCWSD shall initially focus on the High Hazard facilities. This includes facilities which offer the potential threat of contamination of a toxic nature (i.e., chemical, bacteriological, or industrial).

- C. The Owner shall be responsible for notifying LCWSD of any existing, proposed, or modified cross-connection of which the owner has knowledge but which has not been found by LCWSD.
- D. If the Manager or his designee, determines at any time that a serious threat to the public health exists from an actual or potential cross-connection, the water service may be terminated immediately and remain terminated until the Manager or his designee determines that a serious threat to the public health no longer exists.

All Low Hazard Customers, as defined by LCWSD, shall have a residential dual check valve assembly within the coppersetter next to the meter. LCWSD shall own and maintain the check valve assembly in a normal functional manner.

All Low Hazard Residential Lawn Irrigation Systems, as defined by LCWSD, shall have a residential dual check valve assembly located immediately downstream of the meter. LCWSD shall own and maintain the check valve assembly to include replacement at fifteen (15) year maximum intervals.

All Medium Hazard Customers, as defined by LCWSD, shall have a double-check valve assembly (DCVA) which has been approved by the appropriate LCWSD official installed and initially tested by a licensed plumbing contractor on the customer's side of the meter. The customer shall own and maintain the double-check valve assembly in a fully functioning manner. The customer is responsible for all annual testing of assembly(s) at the customer's expense and submitting all completed testing information to LCWSD. The DCVA shall be installed in a LCWSD approved vault or shelter.

All High Hazard Customers, as defined by LCWSD, shall have a reduced pressure back-flow prevention (RPBP) device which has been approved by the appropriate LCWSD official installed and initially tested by a licensed plumbing contractor on the Customer's side of the meter. The Customer shall own and maintain the reduced pressure back-flow prevention device in a fully functioning manner. The Customer is responsible for all annual testing of assembly(s) at the Customer's expense. The RPBP shall be installed in a LCWSD approved vault or shelter.

VII. TESTING REQUIREMENTS

- A. As part of LCWSD's Cross-Connection Control Program, LCWSD shall require annual testing by a certified tester of all Backflow prevention devices. LCWSD may require more frequent testing as it deems necessary based upon the age and condition of the device, where there is a history of test failures, or due to the degree of hazard involved, such additional tests are warranted. All testing will be performed at the Owner's expense.

- B. The certified tester performing the test shall furnish the owner with a written report of the inspection and testing results. The certified tester shall submit a copy of the test report to LCWSD and LCWSD shall be responsible for maintaining those reports for a period of five (5) years.
- C. Each newly installed device shall be tested by a certified tester after installation and prior to use by the Owner. Each device shall be tested annually thereafter unless LCWSD determines that more frequent testing is warranted.
- D. Any Backflow prevention device which fails during a test must be repaired or replaced at the Owner's expense. Upon completion of repairs, the device shall be re-tested at the Owner's expense. High hazard cross-connections shall not be allowed to continue unprotected due to a malfunctioning Backflow prevention device. A compliance date of not more than thirty (30) days after the test date shall be established for successful repair, replacement, and testing of the device(s) in question.

VIII. RECORDS

A. LCWSD shall initiate and maintain the following records:

- 1. Master files on cross-connection surveys and inspections, including the owner's name, address, phone number, and location of the device(s) if present.
- 2. Copies of cross-connection device testing reports furnished by the certified tester.
- 3. The most current list of SCDHEC approved Backflow prevention devices.
- 4. A current list of certified testers.

B. Records shall be open for inspection by the public during normal business hours.

IX. MISCELLANEOUS

- A. All approved public water system(s) which are interconnected with LCWSD's water system shall have a common gate valve and/or check valve assembly between the systems that meet the Specifications. All new Developments shall interconnect with LCWSD's existing water system with a LCWSD approved permanently installed gate valve and a temporary double check valve assembly

which will be removed by the Contractor once final approval is given. All cross-connection devices shall meet the requirements of SCDHEC.

- B. LCWSD reserves the right to randomly inspect any DCVA or RPBP device. In the event that an inspection by LCWSD reveals faulty or malfunctioning device(s), the Owner shall make all necessary repairs within thirty (30) days of receiving written notice that maintenance repair on the faulty device(s) is required. If the Owner fails to provide LCWSD with a certified test of the faulty device(s) within thirty (30) days indicating that the malfunction has been corrected, LCWSD shall schedule the test by a certified tester and bill the Owner at the then applicable rate schedule. If the test indicates that the Owner has failed to perform the required maintenance, LCWSD will terminate the Owner's water service until required maintenance is completed.