



Spartanburg Water

Cross Connection Control Manual

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SECTION 1 - PURPOSE

1. To protect the public potable water supply served by Spartanburg Water from the backflow or back-siphoning of pollutants or contaminants that may be present within its customer's water distribution system.
2. To eliminate or control existing cross connections between its customers' potable and non-potable water systems.
3. To prevent the contamination or pollution of Spartanburg Waters potable water system by establishing an ongoing maintenance program for cross connections.

SECTION 2 - AUTHORITY

The Federal Safe Drinking Water Act of 1974 and South Carolina State Primary Drinking Water Regulations promulgated pursuant to Section 44-55-30 through 44-55-60 of the 1976 South Carolina Code of Laws, Regulation 61-58.7(F) requires that the water purveyor has the primary responsibility for preventing water from unapproved sources, or any other substances, from entering the public potable water system.

SECTION 3 - REGULATION

State Regulation 61-58.7(F) requires that all public water systems initiate and maintain a viable cross connection control program. The program shall consist of:

1. Locating and eliminating unprotected cross connections
2. Maintaining records pertaining to the location of existing backflow prevention assemblies, type, and size of each assembly and test results (when applicable).

No person shall install, permit to be installed or maintain any cross connection between a public water system and any other non-public water system, sewer, or a line from any container or liquids or other substances, unless an approved backflow prevention device or assembly is installed between the public water system and the source of contamination.

SECTION 4 - DEFINITIONS

Approved means accepted by Spartanburg Water as meeting the applicable specification stated or cited in this manual or as suitable for the proposed use.

Auxiliary Water Supply means any water supply on or available to the premises other than the Spartanburg Water approved water supply. Auxiliary water supplies may include water from other water purveyor's public potable water system or any natural source such as a well, spring, river, stream, etc., or used waters, or industrial fluids. They may be polluted or contaminated or they may be objectionable and constitute an unacceptable water source over which Spartanburg Water does not have sanitary control.

Backflow means the undesirable reversal of the intended direction of flow in a potable water distribution system as a result of cross connection.

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Backpressure means any elevation of pressure in the downstream piping system (caused by a pump, elevated tank or piping, steam, air pressure or any other cause) above the water supply pressure at the point which would cause, or influence, a reversal of the normal direction of flow.

Back-siphonage means the flow of water or other liquid, mixtures, or substances into the potable water system from any source other than its intended source. Back-siphonage is caused by the reduction of pressure in the potable water system.

Backflow Prevention Assembly or Device means an assembly designed and approved to prevent backflow. Types of backflow prevention assemblies include:

(1) **Air gap**: The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet conveying water to a tank, plumbing fixture, receptor, and/or the flood rim of the receptacle. The air gap shall be at least twice the diameter of the water supply outlet above the flood rim of the receptacle, and never less than one inch.

(2) **Reduced Pressure Principle Assembly (RP)**: An assembly consisting of two independently acting spring assisted check valves with a hydraulically operating differential relief valve between the check valves and beneath the first check valve. The unit shall have properly located resilient seated test cocks, and resilient seated or ball type shut off valves at each end of the assembly. The assembly shall be readily accessible for in-line testing and maintenance in a location that is never subject to possible flooding. RP devices are approved for high hazard category cross connections. The assembly shall require approval of SCDES and Spartanburg Water.

(3) **Double Check Valve Assembly (DCVA)**: An assembly of two independently operating spring assisted check valves with properly located resilient seated test cocks and resilient seated or ball type shut off valves at each end of the assembly. This device shall be readily accessible for in-line testing and maintenance. This assembly is approved for low hazard category cross connections and shall require approval of SCDES and Spartanburg Water.

(4) **Double Detector Check Assembly**: A specially designed and approved main line double check valve assembly with a small by-pass line that includes a double check valve assembly and a meter to detect leakage or unauthorized use of water on fire lines.

(5) **Pressure Vacuum Breaker (PVB)**: An assembly of one spring loaded check valve, air inlet valve, ball type shut off valves at each end and two test cocks. This assembly is approved only for back-siphonage. The assembly must be installed 12" above any downstream piping or outlets, or flood level rim. PVB devices are approved for high hazard category cross connections.

(6) **Residential Dual Check**: A device of two independently operating spring assisted check valves. This device is not equipped with shut off valves or test cocks. This device is used for selectively approved low hazard category cross connections. (Residential only) The replacement of these devices will coincide with the meter change out schedule utilized by Field Technical Services.

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Certified Tester means any person possessing a current SCDES tester certification and approved testing equipment.

Contamination means an impairment of the potable water quality by physical, chemical, biological, or radiological substance or matter which creates an actual hazard to public health through poisoning or through the spread of disease.

Cross Connection means any actual or potential connection or physical arrangement between a public water supply and any other source or system through which it is possible to introduce into the potable water system any waste or liquid substance of unknown or unsafe quality 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.

Customer means any person or premise that receives potable water from Spartanburg Water.

Customer will be identified as the following:

- Single Family Dwelling --- requires a dual check device
- Commercial, Industrial and Multi-family dwellings --- each of these sites will be evaluated for degree of hazard and then the appropriate testable assembly will be chosen and installed

Hazard or Degree of Hazard means the determination of the potential risk to public health, and adverse effects upon the potable water system. This risk is defined below in two categories:

(1) **High Hazard/Health Hazard:** An existing or potential threat to the public water supply of a physical or toxic nature that results in a danger to public health.

(2) **Low Hazard/Non-Health Hazard:** A hazard that does not constitute a threat to health, but may cause an actual or potential threat to the physical properties of the water and cause a nuisance or be aesthetically objectionable.

Flood Level Rim means the level from which liquid in plumbing fixtures, appliances, or vats could overflow to the floor, when all drain and overflow openings built into the equipment are obstructed.

Health Official means the South Carolina Department Environmental Services (SCDES)

Industrial Fluids means all types of process and used waters that may be chemically, biologically or otherwise contaminated that would be a health hazard if introduced into the potable water supply.

Potable Water means water from any source which meets the state and federal drinking water standards and which has been approved for human consumption.

Remote High Hazard Fire System means a fire system that has an isolated section with an antifreeze system or other chemical injection system.

Residential Lawn Irrigation (Low Hazard) means any irrigation system on a Single family dwelling that has no chemical injection system or auxiliary water source.

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Spartanburg Water (SW) consists of the Commissioners of Public Works of the City of Spartanburg, South Carolina, employees of Spartanburg Water, and designated representatives of Spartanburg Water.

Used Water means any water supplied by the Water Purveyor that has passed the water service connection.

Water Purveyor means the owner or operator of a public or private potable water supply.

Water Service Connection means the point where the public potable water system and the customer's water distribution system connect.

SECTION 5 – RESPONSIBILITIES

1. The responsibilities of the Spartanburg Water cross-connection control program are:
 - a. To prevent contamination to the public water system from the introduction of contaminants or pollutants through a service connection. This responsibility begins at the source includes the entire water supply distribution system and ends at the user water service connections. If, in the judgment of Spartanburg Water an approved backflow prevention assembly is required for the safety of the water system, Spartanburg Water will give notice in writing to the customer to have installed such approved backflow prevention assembly(s) at specific location(s) on their premises. Spartanburg Water's preferred method of cross connection control will be containment by installing an approved assembly located immediately downstream of the meter or immediately inside the building and prior to the first connection off the service line. The customer will be required to install such approved assembly(s) at their expense. Failure, refusal, or inability on the part of the customer to install, have tested (as required), and maintained said assembly(s) may constitute grounds for discontinuing water service to the premises until such requirements have been satisfactorily met.

Wholesale customers will comply with these policies at the point of connection to Spartanburg Water system.

- b. To promulgate and enforce policies, regulations, and rules necessary to carry out designated responsibilities.
 - c. To make inspections and determinations of the degree of hazard customers present to Spartanburg Water system.
 - d. To make and maintain all necessary records in accordance with this policy.
 - e. To maintain a list of approved cross-connection prevention assemblies for use in Spartanburg Water system.
2. The responsibilities of water consumers to the cross-connection program are as follows:
 - a. The water user has the primary responsibility to keep contaminants out of the potable water system. This responsibility begins at the user water service connection and includes any

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and all water distribution piping on the premises. If a cross-connection or a potential for a cross-connection exists, the water user, at the water user's expense, will be required to install, test (as required), and maintain approved backflow prevention device(s) as required by Spartanburg Water policy.

- b. The customer should contact Spartanburg Water prior to purchasing or installing a backflow prevention assembly.
 - c. In the event of accidental cross-connection to the Spartanburg Water supply system, the user shall immediately notify Spartanburg Water and must confine further spread of pollution or contamination within the user's premises.
3. The responsibility of the installer of cross-connection prevention assemblies:
 - a. To make sure that each assembly is working properly. The assembly must be tested by a SCDES approved tester when installed and prior to the system being placed into service.
 4. The responsibility of the SCDES approved Tester:
 - a. An approved tester is an independent contractor who is certified by SCDES to test backflow assemblies for SW customers.
 - b. Any test reports not filled out completely or not legible will be rejected.

SECTION 6 - REQUIREMENTS

1. No water service connection to any premises shall be installed or maintained by Spartanburg Water unless the water supply is protected as required by state law and regulations and the SW cross-connection control policy. Service of water to any premise may be discontinued by Spartanburg Water when a backflow prevention assembly required by this cross connection control manual is not installed, tested, and maintained according to requirements, or if it is found that a backflow prevention assembly has been removed, or by-passed, or if an unprotected cross-connection exists on the premises. The following requirements are mandatory for Spartanburg Water Customers:
 - a. Residential Customer with ¾" to 1" will have a Residential Dual Check Valve installed by Spartanburg Water
 - b. Commercial Customer shall have an approved testable assembly installed based on degree of hazard identified by CCC Technicians
 - c. Industrial Customer shall have an approved testable assembly installed based on degree of hazard identified by CCC Technicians
 - d. Multi-Dwelling Customer shall have an approved testable assembly installed based on degree of hazard identified by CCC Technicians
2. The customer's system should be open for inspection at all reasonable times to authorized representatives of SCDES and Spartanburg Water to determine where cross-connection or other structural or sanitary hazards, including violations of the regulation, exist. When such a condition

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becomes known, Spartanburg Water may in its sole discretion opt to deny or immediately discontinue water service to the premises.

3. When required, an approved backflow prevention assembly will be installed on each service line to a customer's water system directly behind their meter box or near the property line or immediately inside the building being served and approved by a SWS CCC Technician.
4. In the case of premises having (1) internal cross-connections that cannot be permanently corrected and controlled, (2) intricate plumbing and piping arrangements, or (3) where entry to all portions of the premises is not readily accessible for inspection purposes, making it impractical or impossible to ascertain whether or not hazardous cross-connections exist, Spartanburg Water distribution system shall be protected against backflow from the premises by installing and approved backflow prevention assembly in the service line.
5. Any backflow prevention assembly required herein will be a model and size approved by Spartanburg Water. See appendices (A) in the back of the manual.

SECTION 7 - DEGREE OF HAZARD

The type of protective assembly required will depend upon the degree of the hazard that exists as follows:

- a. In the case of any premises where there is any material hazardous to health that is handled in such fashion as to create an actual or potential hazard to Spartanburg Water system, Spartanburg Water system will be protected by an approved air-gap separation or an approved reduced-pressure principle backflow prevention assembly. Examples of premises where these conditions will exist include sewage treatment plants, sewage pumping stations, chemical manufacturing plants, hospitals, mortuaries, and plating plants.
- b. In the case of any premises where there is water or a substance that would be objectionable but not hazardous to health if introduced into Spartanburg Water system, Spartanburg Water system will be protected by an approved double-check valve assembly.

SECTION 8 - INSTALLATION

8.1 New Connections

1. When the application and purchase is made for the water service connection, the customer will provide information regarding the use of the water at the new connection. Spartanburg Water will evaluate the new service to determine the type of backflow prevention assembly required.
2. The customer will be notified of the backflow prevention assembly requirements, including an installation timeline.
3. The customer will have the backflow prevention assembly completely installed according to all Spartanburg Water requirements found in the manual of cross connection control (See Appendix (A) & (B)) All Spartanburg Water and SCDES and manufacturers' installation requirements will be met.

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4. Spartanburg Water will make a site inspection and if the installation is found to be satisfactory the meter or service will be unlocked and turned on. If installation deficiencies are found during the inspection, the customer will be notified to correct all such deficiencies and a follow up inspection will be completed before the water service is turned on.

8.2 Existing Service Connections

1. Existing service connections will be evaluated by Spartanburg Water to determine the type of backflow prevention assembly required (if any).
2. Spartanburg Water will make an appointment with the water customer for a site survey. In selected cases a site survey may not be necessary. Spartanburg water may, in its sole discretion, waive the site survey in selected cases.
4. The customer will be notified of the backflow prevention assembly requirements, including an installation deadline.
5. The customer will have the backflow prevention assembly completely installed according to all Spartanburg Water requirements found in the manual of cross connection control (See Appendix (A) & (B) All Spartanburg Water and SCDES and manufacturers' installation requirements will be met.
6. The customer will notify Spartanburg Water at least 7 calendar days prior to the required inspection.

8.3 Right of Entry

Whenever it shall be necessary for the purpose of compliance or enforcement of the policy, Spartanburg Water and/or SCDES representatives may enter upon any property or premises at reasonable times for the purpose of:

- a. Inspection of any equipment or water lines
- b. Sampling of any water suspected of any cross-connection.

Spartanburg Water and/or SCDES may enter upon the property at any hour under emergency circumstances to perform any investigation required to enforce this Policy.

8.4 Wells

Any building presently being served from a private well must physically disconnect from the well prior to Spartanburg Water System metered service being turned on for use.

- The well can be maintained for outdoor use. If the customer desires the well to remain connected to the SW meter service, a reduced pressure backflow prevention device must be installed on the service line, on the customer side of the water meter by the customer as outlined in section 8.1 of this manual.

SECTION 9 - INSTALLATION REQUIREMENTS

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9.1 Hazard Applications

1. **High Hazard/Health Hazard** connections require reduced pressure principle assemblies, pressure vacuum breakers (for back-siphonage hazards only), or an air gap for prevention of backflow.
2. **Low Hazard/Non-health Hazard** connections require double check valve assemblies or double detector valve assemblies for prevention of backflow.

9.2 Location

Installation of the assemblies will usually be in a structure directly behind their meter box or near the property line or immediately inside the building in a mechanical area, and prior to the first connection off the service line. The Spartanburg Water will review each site and make a recommendation for the location of the assembly.

9.3 RP and DCVA Installation Requirements

1. The assembly must appear on the Spartanburg Water list of approved backflow prevention assemblies. See Appendices (A.) & (B)
2. No by-pass is permitted around the assembly unless there is an equal backflow prevention assembly in the by-pass. Customers with situations that prohibit shutting off the water service to test or repair the assembly should install a backflow prevention assembly in parallel or install a separate parallel duplicate service line with proper backflow protection.
3. All manufacturers' installation requirements will be consulted and followed including hot water and high pressure applications.
4. Requirements for height and side clearance must comply with Appendix (B)
5. All backflow prevention assemblies will be installed in an enclosure or building on the customer's property to prevent damage from freezing, traffic or vandalism, and will be readily accessible for testing and maintenance.
6. The customer will design and install adequate thrust restraints. Upon inspection, Spartanburg Water may require additional thrust restraints where deemed necessary.
7. The customer will design and install adequate pipe supports. Upon inspection Spartanburg Water may require additional pipe supports where deemed necessary.
8. A strainer may be needed as recommended by the manufacturer to prevent particles from fouling the check assemblies.
9. No black iron/black steel piping will be installed on the supply side of any backflow prevention assembly

9.4 Additional Requirements for RPs

1. Conditions may exist where periodic pressure fluctuations cause the relief valve of the assembly to discharge to the point of becoming a nuisance. In this event, the customer should install an additional check valve prior to the assembly.
2. Relief valve drain piping must meet approved air gap requirements. The air gap distance requirement is equal to two (2) times the relief valve diameter or 1-inch, whichever is greater. The piping will be sized to exceed the discharge rate of the relief valve.

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3. The relief valve will never become submerged.
4. Underground installations of reduced pressure principle backflow assemblies are discouraged. Underground installations are only permitted in exceptional circumstances on a case by case basis and only where an adequately sized gravity drain can be installed.

9.5 Fire Suppression/Fire Sprinkler Systems

Each private fire protection system will be evaluated by site and/or plan survey for degree of hazard. Backflow prevention assemblies commensurate with the degree of hazard will be required on all connections to Spartanburg Water.

High Hazard/Health Hazard Category: Systems that are considered to be in the High Hazard/Health Hazard Category include, but are not limited to: antifreeze systems, foam injection systems and systems supplied from or connected to lakes, ponds, streams, or any other source other than Spartanburg Water. High hazard category fire protection systems will require a Reduced Pressure assembly or Air Gap on any connection to Spartanburg Water as close as possible to the service connection and the property line.

A remote high hazard fire system is a fire system that has an isolated section with an antifreeze system or other chemical injection system. It is acceptable to protect this type of fire system with a Reduced Pressure assembly at the site of the chemical addition or at the water connection.

Low Hazard/Health Hazard Category: Systems that are considered to be in the Low Hazard/Health Hazard Category of fire protection systems will include simple wet or dry fire sprinkler systems. These systems may also include covered storage tanks or pumps supplied by the Spartanburg Water. A Double Detector Check Assembly is required on any connection to the Spartanburg Water as close as possible to the service connection and the property line.

In isolated cases the backflow prevention assembly must be installed inside the building. A Double Check Valve assembly will be installed on the riser piping immediately above the floor. This must be included on the building drawings and approved in writing by Spartanburg Water.

9.6 Removal of Assembly

No backflow prevention assembly will be removed, by-passed, or downgraded without prior written approval of the Spartanburg Water.

SECTION 10 - TESTING REQUIREMENTS

10.1 Residential Lawn Irrigation Systems

Low Hazard/Health Hazard: Spartanburg Water requires all customers who operate low hazard residential lawn irrigation systems to install as a minimum a dual check valve assembly for backflow prevention. The assembly will be replaced in conjunction with the meter change-out program or if malfunction of the assembly occurs.

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High Hazard/Health Hazard: Regulations require that high hazard residential lawn irrigation systems must comply with the requirements of a high hazard cross connection. This includes the installation and maintenance of a reduced pressure assembly. Annual testing of this device is required by regulation.

10.2 Testing of Assemblies

All existing approved backflow assemblies, excluding low hazard residential lawn irrigation systems, are required to be tested annually or as deemed necessary to comply with Spartanburg Water or Department of Health and Environmental Control (DHEC) requirements.

Customers with backflow assemblies will be sent a notification letter (Tier 1) by Spartanburg Water 30 days prior to the date the test is due to be completed. The due date for the test is the last day of the month. Upon notification the customer is responsible for getting the assembly(s) tested utilizing a SW SCDES Certified Tester approved tester. The customer is responsible for ensuring that the tester tests the assembly by the due date and transmits the test report indicating compliance to Spartanburg Water within 7 days of the actual date the device is tested.

If Spartanburg Water has not received the completed test report indicating compliance within 14 days after the due date, a second notification letter (Tier 2) will be sent to the customer requiring the completed test reports be received within 14 calendar days or the customer will be considered non-compliant. If SW still has not received the test reports at the end of this 14 calendar day period the third and final letter (Tier 3) will be sent notifying the customer that one of the following actions will take place after 14 calendar days have passed:

- SW will hire a SCDES approved tester who will test the assembly and their labor, parts and an administrative fee will be added to the water bill.
- If access to the assembly is not available SW may in its sole discretion opt to suspend services

10.3 Test Failures

If tested assembly(s) fail the required tests indicating compliance and cannot be repaired immediately the tester will return a copy of the failed test report to Spartanburg Water the same day of the failed test with an explanation of the test failure and the repair(s) needed. Failing assemblies must be satisfactorily repaired or replaced, completely retested and the reports submitted to SW within 10 business days of the date of the test failure. If during this time Spartanburg Water determines the potable water supply is at risk of a potential backflow or cross connection as the result of the failed backflow assemble(s) the water service shall be disconnected immediately. If an extension of time will be needed to complete repair/replacement and retesting, the tester or customer must request the extension within 3 business days of the test failure. SW will notify the customer and/or the tester that an extension is granted and for how long, or that no extension is granted. Granting or denial of any extension shall be at Spartanburg Water's sole discretion.

After the assembly is repaired or replaced the assembly will be retested and the completed test report indicating compliance will be returned to Spartanburg Water.

10.4 Testing Non-Compliance

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Customers with backflow assemblies will be considered non-compliant when:

- Completed test reports indicating compliance are not received by the 14th calendar day after the end of the month due date.
- Failing assemblies not satisfactorily repaired or replaced, retested and test reports indicating compliance submitted within 10 business days of the original date of the test failure, unless an extension of time has been granted in writing by Spartanburg Water
- Failing assemblies that require replacement will be held to the completion schedule as outlined in the Test Failures sections.

Failure to comply with the testing, repairing, replacement and retesting requirements as stipulated within this section may result in the following options:

1. Assemblies located at the property line or meter and/or readily accessible will be tested by SW as described in Testing of Assemblies

The non-compliant customer(s) will assume all of Spartanburg Water's costs associated with the testing, repairing, retesting and/or replacement of the device(s) plus a fifty dollar (\$50.00) administrative fee to recover the costs involved in the handling, administration, and billing of the test. These costs will be added to the customer's water bill.

2. If access to the assembly is not available SW may in its sole discretion opt to suspend water services .
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SECTION 11 - NON-COMPLIANCE/ENFORCEMENT

11.1 Enforcement Authority

Pursuant to authority granted by the General Assembly of South Carolina in 1896, The Commissioners of Public Works of the City of Spartanburg (Spartanburg Water System) has the authority to build, maintain, and operate facilities needed to meet the water supply needs of its service area. Under its statutes, Spartanburg Water System (SWS) has the responsibility and legal right to take all action necessary to maintain and protect its water system.

The remedies provided in this section are not exclusive. Spartanburg Water System (SWS) reserves the right to take any other action, either more or less stringent, that SWS determines to be appropriate against any user or person for any violation of any provision of this Cross Connection Control Manual, federal, state and local requirements, permit, or orders or directives issued. Further, SWS is

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empowered to take more than one enforcement action concurrently against any person who is in noncompliance.

Criminal Prosecution

This Cross Connection Control Manual is a regulation of SWS. Under Section 22-102 of the Spartanburg Municipal Code, SWS regulations are enforceable as Spartanburg city ordinances with fines of up to \$500 or 30 days imprisonment per violation. See S.C. Code Ann. § 5-7-30.

Under other statutes, tampering with the property or appurtenances of SWS's system is a criminal offense. See S.C. Code Ann. § 5-31-1120.

It is a crime to pollute the water supply of any city water system. See S.C. Code Ann. § 5-31-1130.

These offenses can result in criminal fines of up to \$200 and 60 days imprisonment per violation. See S.C. Code Ann. § 5-31-1170.

In addition, The State Safe Drinking Water Act (SC Code Title 44, Chapter 55, Article 1, contains the following provisions:

SECTION 44-55-80. Unlawful acts.

(A) It is unlawful for a person to fail to comply with:

- (1) the provisions of this article or the regulations promulgated pursuant to this article;
- (2) the conditions of any permit issued under this article; or
- (3) any order of the department (SC Department of Health and Environmental Control).

(B) It is unlawful for a person to render a public water system, or part or portion of a public water system, inoperable or unusable by means of contamination, vandalism, sabotage, or assault upon or detention of employees of the system or to misrepresent any fact related to the operation of a public water system.

SECTION 44-55-90. Penalties; injunctive relief.

(A) Any person willfully violating the provisions of Section 44-55-80 is guilty of a misdemeanor and, upon conviction, must be fined not more than ten thousand dollars a day per violation or imprisoned for not more than one year, or both.

(B)

- (1) A violation of Section 44-55-80 by a person renders the violator liable to the State for a civil penalty of not more than five thousand dollars a day per violation.
- (2) The department SC Department of Environmental Services may administer penalties as otherwise provided for violations of this article, including any order,

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permit, regulation, or standard or may request the Attorney General to commence an action under this subsection in an appropriate court of the State to secure this penalty.

(C) The department SC Department of Environmental Services may cause to be instituted a civil action in any court of applicable jurisdiction for injunctive relief to prevent violation of this article or any order issued pursuant to Sections 44-55-40, 44-55-60, and 44-55-70.

Spartanburg Water will cooperate fully with any lawful state or federal agency enforcement action.

Falsifying Information

Any person who knowingly makes any false statements, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to this Cross Connection Control Manual may be subject to penalties as outlined in Section 11.

Civil Remedies

SWS may recover:

- the cost of any actual damages incurred by SWS;
- the cost of testing devices to meet requirements of this manual;
- reasonable consultants', professionals' and attorneys' fees and court costs;
- any other expenses associated with enforcement activities;
- administrative fees as provided by law or regulation.

11.2 Enforcement Procedure

Non-compliance may result in enforcement procedures follows:

- a. Existing water customers who do not have a cross-connection control assembly(s) in their system at present, but will be required to install such an assembly under this policy. Customers in this category where contaminants on their property have been determined by Spartanburg Water to represent a health hazard to the public water system will be required to take immediate corrective action upon notification. Customers will be required to install an approved backflow prevention assembly within thirty (30) days of notification from Spartanburg Water.
- b. Failure of any new water customer to install an approved backflow prevention assembly prior to connection to Spartanburg Water distribution system whenever Spartanburg Water has determined that contaminants or pollution on the customer's property represents a

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hazard to the public water system. SW may in its sole discretion opt to suspend water services

- c. Those existing water customers who have required backflow prevention assembly (s) in their system which do not meet Spartanburg Water requirements will be required to replace backflow prevention assembly(s) with assemblies that meet Spartanburg Water requirements. Failing backflow prevention assemblies must be repaired or replaced by the customers with an approved backflow prevention assembly within ten (10) days after notification by Spartanburg Water or grant an extension of time.

11.3 Termination of water service/Reconnect fees

- a. Service of water to any premises may be discontinued by Spartanburg Water for the following reasons: (1) if a backflow prevention assembly that is required by law, rules, or regulations is not installed, tested, and maintained, (2) if it is found that a backflow prevention device has been removed or by-passed, or (3) if unprotected cross-connection exists on the premises and there is inadequate backflow protection at the service connections. Water service will not be restored until such conditions and defects are corrected.
- b. Water services may be terminated for water customers who do not comply with Spartanburg Water cross connection control policy. A written notice will be provided to the customer that water service will be terminated within ten (10) days if the requirements of this policy are not met.
- c. The customer will be responsible for all applicable reconnection fees and charges. Spartanburg Water will not be liable for damages, losses, or claims arising from discontinuance of water service.

11.4 Legal Action

After the evidence has been reviewed and a decision rendered with a copy to the customer, Spartanburg Water may terminate water service and/or pursue any available legal remedy.

Spartanburg Water reserves the right to perform any action or combination of action(s) it deems necessary as remedies of compliance with this manual, any other local, state, and federal requirement(s) involving cross-connection control within its system.

SECTION 12 – APPEALS

Customers, contractors, or other individuals that disagree with any requirement of the Spartanburg Waters Cross Connection Control Policy or requirements imposed by Spartanburg Water may appeal any requirement to the Commissioners of Public Works of the City of Spartanburg, South Carolina. Any appeal must be submitted in writing to the Spartanburg Water Chief Executive Officer or her/his designee a minimum of two weeks in advance of any regularly scheduled Commission Meeting. The individual making the appeal will be given the opportunity to appear before the Commission to present their appeal.

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After review and any investigation necessary, the Commission will notify the individual of a decision, which will be final.

SECTION 13 – THERMAL EXPANSION

There are several regulatory agencies that require Spartanburg Water to maintain a viable Cross Connection Control Program. Backflow can occur from all industrial, commercial, or residential water service connections. Since 1971, backflow prevention assemblies have been installed on many service connections. In 1985, the Spartanburg Water began installing residential dual check valves on ¾” services. These practices continue today in an effort to prevent backflow from all size services from entering the public potable water supply.

Practically all customers utilize heated water in their plumbing system. When water is heated, its physical character changes and it expands. This expanded water needs to occupy more space. Before backflow preventers or dual check valves were installed on service lines, this expanded water expanded back into the Spartanburg Water’s distribution system. This was known as an open system. This is no longer possible where a backflow preventer or a dual check is present. This is known as a closed system. The condition of heated water expanding in a closed system is known as Thermal Expansion. Often, thermal expansion will cause water heater Temperature and pressure Relief Valves to discharge excessive water pressures, usually at above 150 psi.

The three most popular methods of dealing with the effects of thermal expansion are: installing a bladder type expansion tank, a special ball cock and relief valve in the water closet, or a remote thermal expansion relief valve. The SWS suggests you discuss these alternatives with a licensed plumber. These three methods can be “do it yourself” projects.

The Spartanburg Water will make its best effort to continue to provide safe potable water to all customers. Backflow prevention assemblies are a necessary means to protect the Spartanburg Water’s water distribution system. If you have any questions concerning thermal expansion as it relates to cross connection control, call 864-585-8296.

ATTACHMENTS