



Cross Connection Policy

Purpose and Policy.

This policy sets forth uniform requirements for the protection of the public water system for the Webb Creek Utility District from possible contamination, and enable the Webb Creek Utility District to comply with all applicable local, State and Federal laws, regulations, standards or requirements, including the Safe Drinking Water Act of 1974 (42 United States Code 300f et. seq. Public Law 93-523) and the Rules and Regulations for Public Water Systems and Drinking Water Quality issued by the Tennessee Department of Environment and Conservation, Division of Water Supply.

Objectives.

The objectives of this policy are to:

(1) To protect the public potable water system of Webb Creek Utility District from the possibility of contamination or pollution by isolating within the customer's internal distribution system, such contaminants or pollutants that could backflow or backsiphon into the public water system;

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

(3) 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.

Definitions.

The following words, terms and phrases shall have the meanings ascribed to them in this section, when used in the interpretation and enforcement of this article:

(1) **Air-gap** shall mean a vertical, physical separation between a water supply and the overflow rim of a non-pressurized receiving vessel. An approved air-gap separation shall be at least twice the inside diameter of the water supply line, but in no case less than two (2") inches. Where a discharge line serves as receiver, the air-gap shall be at least twice the diameter of the discharge line, but not less than two (2") inches.

(2) **Atmospheric vacuum breaker** shall mean a device which prevent backsiphonage by creating an atmospheric vent when there is either a negative pressure or sub-atmospheric pressure in the water system.

(3) **Auxiliary intake** shall mean any water supply, on or available to a premises, other than that directly supplied by the public water system. These auxiliary waters may include water from another purveyor's public water system; any natural source, such as a well, spring, river, stream, and so forth; used, reclaimed or recycled waters; or industrial fluids.

(4) **Backflow** shall mean the undesirable reversal of the intended direction of flow in a potable water distribution system as a result of a cross connection.

(5) **Backpressure** shall mean any elevation of pressure in the downstream piping system (caused by pump, elevated tank or piping, steam and/or air pressure) above the water supply pressure at the point which would cause, or tend to cause, a reversal of the normal direction of flow.

(6) **Backsiphonage** shall mean the flow of water or other liquids, mixtures or substances into the potable water system from any source other than its

intended source, cause by the reduction of pressure in the potable water system.

(7) **Bypass** shall mean any system of piping or other arrangement whereby water from the public water system can be diverted around a backflow prevention device.

(8) **Cross connection** shall mean any physical connection or potential connection whereby the public water system is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture or other waste or liquid of unknown or unsafe quality, which may be capable of imparting contamination to the public water system as a result of backflow or backsiphonage. Bypass arrangements, jumper connections, removable sections, swivel or changeover devices, through which or because of which backflow could occur, are considered to be cross connections.

(9) **Double check valve assembly** shall mean an assembly of two (2) independently operating, approved check valves with tightly closing resilient seated shut-off valves on each side of the check valves, fitted with properly located resilient seated test cocks for testing each check valve.

(10) **Double check detector assembly** shall mean an assembly of two (2) independently operating, approved check valves with an approved water meter (protected by another double check valve assembly) connected across the check valves, with tightly closing resilient seated shut-off valves on each side of the check valves, fitted with properly located resilient seated test cocks for testing each part of the assembly.

(11) **Fire protection systems** shall be classified in six different classes in accordance with *AWWA Manual M14 - Second Edition 1990*. The six classes are as follows:

Class 1 shall be those with direct connections from public 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 the atmosphere, dry wells or other safe outlets.

Class 2 shall be the same as **Class 1**, except that booster pumps may be installed in the connections from the street mains.

Class 3 shall be those with direct connection from public water supply mains, plus one or more of the following: elevated storage tanks, fire pumps taking suction from above ground covered reservoirs or tanks, and/or pressure tanks (all storage facilities are filled from or connected to public water only, and the water in the tanks is to be maintained in a potable condition).

Class 4 shall be those with direct connection from the public water supply mains, similar to **Class 1** and **Class 2**, with an auxiliary water supply dedicated to fire department use and available to the premises, such as an auxiliary supply located within 1700 ft. of the pumper connection.

Class 5 shall be those directly supplied from public water mains and interconnected with auxiliary supplies, such as pumps taking suction from reservoirs exposed to contamination, or rivers and ponds; driven wells; mills or other industrial water systems; or where antifreeze or other additives are used.

Class 6 shall be those with combined industrial and fire protection systems supplied from the public water mains only, with or without gravity storage or pump suction tanks.

(12) **Interconnection** shall mean any system of piping or other arrangements whereby the public water supply is connected directly with a sewer, drain, conduit, pool, storage reservoir, or other device which does or may contain sewage or other waste or liquid which would be capable of imparting contamination to the public water system.

(13) **Person** shall mean any and all persons, natural or artificial, including any individual, firm or association, and any municipal or private corporation organized or existing under the laws of this or any other state or country.

(14) **Potable water** shall mean water, which meets the criteria of the Tennessee Department of Environment and Conservation and the United States Environmental Protection Agency for human consumption.

(15) **Pressure vacuum breaker** shall mean an assembly consisting of a device containing one (1) or two (2) independently operating spring loaded check valves and an independently operating spring loaded air inlet valve located on the discharge side of the check valve(s), with tightly closing shut-off valves on each side of the check valves and properly located test cocks for the testing of the check valves and relief valve.

(16) **Public water supply** shall mean the Webb Creek Utility District water system, which furnishes potable water to the public for general use and which is recognized as the public water supply by the Tennessee Department of Environment and Conservation.

(17) **Reduced pressure principle backflow prevention device** shall mean an assembly consisting of two (2) independently operating approved check valves with an automatically operating differential relief valve located between the two check valves, tightly closing resilient seated shut-off valves, plus properly located resilient seated test cocks for the testing of the check valves and the relief valve.

(18) **Manager** shall mean the Manager of the Webb Creek Utility District or his duly authorized deputy, agent or representative.

(19) **Water system** shall be considered as made up of two (2) parts, the utility system and the customer system.

a. The utility system shall consist of the facilities for the storage and distribution of water; and shall include all those facilities of the water system under the complete control of the utility system, up to the point where the customer's system begins (i.e. the water meter);

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

Compliance with T.C.A.

The Webb Creek Utility District shall be responsible for the protection of the public water system from contamination or pollution due to the backflow of contaminants through the water service connection. The Webb Creek Utility District shall comply with Sections 68-13-701 through 68-13-719 of the Tennessee Code Annotated, as well as the Rules and Regulations for Public Water Systems and Drinking Water Quality, legally adopted in accordance with this Code, which pertain to cross connections, auxiliary intakes, bypasses and interconnections; and shall establish an effective, on-going program to control these undesirable water uses.

Regulated.

(1) No water service connection to any premises shall be installed or maintained by the Webb Creek Utility District system unless the water supply system is protected as required by state laws and this policy. Service of water to any premises shall be discontinued by the utility system if a backflow prevention device required by this policy is not installed, tested, and/or maintained; or if it is found that a backflow prevention device has been removed, bypassed, or if an unprotected cross connection exists on the premises. Service shall not be restored until such conditions or defects are corrected.

(2) It shall be unlawful for any person to cause a cross connection to be made; or allow one to exist for any purpose whatsoever unless the construction and

operation of same have been approved by the Tennessee Department of Environment and Conservation, and the operation of such cross connection is at all times under the direction of the manager of the Webb Creek Utility District .

(3) If, in the judgment of the manager or his designated agent, an approved backflow prevention device is required at the water service connection to a customer's premises, or at any point(s) within the premises, to protect the potable water supply, the manager shall compel the installation, testing and maintenance of the required backflow prevention device(s) at the customer's expense.

(4) An approved backflow prevention device shall be installed on each water service line to a customer's premises at or near the property line or immediately inside the building being served; but in all cases, before the first branch line leading off the service line.

(5) For new installations, the manager or his designated agent shall inspect the site and/or review plans in order to assess the degree of hazard and to determine the type of backflow prevention device, if any, that will be required, and to notify the owners in writing of the required device and installation criteria. All required devices shall be installed and operational prior to the initiation of water service.

(6) For existing premises, personnel from the Webb Creek Utility District shall conduct inspections and evaluations, and shall require correction of violations in accordance with the provisions of this policy.

Permit Required.

(1) **New Installations.**

No installation, alteration, or change shall be made of any backflow prevention device connected to the public water supply for water service, fire protection or

any other purpose without first contacting the Webb Creek Utility District for approval and/or payment required fee.

An ***Installation/Maintenance Tag*** shall be installed on the device following installation and testing, and shall be removed only by personnel from the Webb Creek Utility District at the time of inspection. One copy of the Cross-Connection Control Devices Test Report shall be submitted to the Webb Creek Utility District upon completion of the installation and testing.

(2) **Existing Installations.**

No alteration, repair, testing or change shall be made of any existing backflow prevention device connected to the public water supply for water service, fire protection or any other purpose without first securing the appropriate approval and a ***Cross Connection Control Devices Test Report and an Installation/Maintenance Tag*** from the Webb Creek Utility District. The Installation/Maintenance Tag shall be installed on the device following alteration, repair and/or testing, and shall only be removed by personnel from the Webb Creek Utility District.

Inspections.

(1) The manager or his designated agent shall inspect all properties served by the public water supply where cross connections with the public water supply are deemed possible. The frequency of inspections and reinspection shall be based on potential health hazards involved, and shall be established by the Webb Creek Utility District in accordance with guidelines acceptable to the Tennessee Department of Environment and Conservation.

(2) **Right of Entry for Inspections.** The manager or his authorized representative shall have the right to enter, at any reasonable time, any property served by a connection to the Webb Creek Utility District public water system for the purpose of inspecting the piping system therein for cross connection, auxiliary intakes, bypasses or interconnections, or for the testing of

backflow prevention devices. Upon request, the owner, lessee, or occupant of any property so served shall furnish any pertinent information regarding the piping system(s) on such property. The refusal of such information or refusal of access, when requested, shall be deemed evidence of the presence of cross connections, and shall be grounds for disconnection of water service.

Correction of Violations.

- (1) Any person found to have cross connections, auxiliary intakes, bypasses or interconnections in violation of the provisions of this policy shall be allowed a reasonable time within which to comply with the provisions of this policy. After a thorough investigation of the existing conditions and an appraisal of the time required to complete the work, an appropriate amount of time shall be assigned by the manager or his representative, but in no case shall the time for corrective measures exceed ninety (90) days.
- (2) Where cross connections, auxiliary intakes, bypasses or interconnections are found that constitute an extreme hazard, with the immediate possibility of contaminating the public water system, the Webb Creek Utility District shall require that immediate corrective action be taken to eliminate the threat to the public water system. Expeditious steps shall be taken to disconnect the public water system from the on site piping system unless the imminent hazard is immediately corrected, subject to the right to a due process hearing upon timely request. The time allowed for preparation for a due process hearing shall be relative to the risk of hazard to the public health; and may follow disconnection when the risk to the public health and safety, in the opinion of the manager, warrants disconnection prior to a due process hearing.
- (3) The failure to correct conditions threatening the safety of the public water system as prohibited by this policy and Tennessee Code Annotated, Section 68-13-711, within the time limits established by the manager or his representative, shall be grounds for denial of water service. If proper

protection has not been provided after a reasonable time, the manager shall give the customer legal notification that water service is to be discontinued, and shall physically separate the public water system from the customer's on site piping in such a manner that the two systems cannot again be connected by an unauthorized person, subject to the right of a due process hearing upon timely request. The due process hearing may follow disconnection when the risk to the public health and safety, in the opinion of the manager, warrants disconnection prior to a due process hearing.

Required Devices.

- (1) Where the nature of the use of water supplied to a premises by the Webb Creek Utility District water system is such that it is deemed:
 - a. Impractical to provide an effective air-gap separation;
 - b. The owner/occupant of the premises cannot or is not willing to demonstrate to the utility that the water use and protective features of the plumbing are such as to pose no threat to the safety or pot ability of the water;
 - c. The nature and mode of operation within a premises are such that frequent alterations are made to the plumbing;
 - d. There is likelihood that protective measures may be subverted, altered or disconnected;
 - e. The nature of the premises is such that the use of the structure may change to a use wherein backflow prevention is required;
 - f. The plumbing from a private well enters the premises served by the public water system, then the utility shall require the use of an approved protective device on the water service line serving the premises to assure that any contamination that may originate n the customer's premises is contained therein.

- (2) The protective devices shall be of the type approved by the Tennessee Department of Environment and Conservation and the utility, as to manufacture, model, size and application. The method of installation of backflow prevention devices shall be approved by the utility prior to installation and shall comply with the criteria set forth in this policy. The installation and maintenance of backflow prevention devices shall be at the expense of the owner or occupant of the premises.
- (3) Applications requiring backflow prevention devices shall include, but shall not be limited to, domestic water service and/or fire flow connections for all commercial and educational buildings, construction sites, all industrial, institutional and medical facilities, all fountains, lawn irrigation systems, wells, water softeners and other treatment systems, swimming pools and on all fire hydrant connections other than those by the fire department in combating fees.
- a.) Class 1, Class 2 and Class 3 fire protection systems shall generally require a double check valve assembly; except 1) a double check detector assembly shall be required where a hydrant or other point of use exists on the system; or 2) a reduced pressure backflow prevention device shall be required where:
- i. Underground fire sprinkler lines are parallel to and within ten (10) feet horizontally of pipes carrying sewage or significantly toxic materials;
 - ii. Premises have unusually complex piping systems;
 - iii. Pumpers connecting to the system have corrosion inhibitors or other chemicals added to the tanks of the fire trucks.
- b.) Class 4, Class 5 and Class 6 fire protection systems shall require reduced pressure backflow prevention devices.

c.) Wherever the fire protection system piping is not an acceptable potable water system material, or chemicals such as foam concentrates or antifreeze additives are used, a reduced pressure backflow prevention device shall be required.

(4) The manager or his representative may require additional and/or internal backflow prevention devices wherein it is deemed necessary to protect potable water supplies within the premises.

(5) **Installation Criteria.** The minimum acceptable criteria for the installation of reduced pressure backflow prevention devices, double check valve assemblies or other backflow prevention devices requiring regular inspection or testing shall include the following:

a. All required devices shall be installed in accordance with the provisions of this policy, by a person certified by the Tennessee Department of Environment and Conservation, Division of Drinking Water Supply, or its successor. Certification shall be for ***completion of special training and demonstration of competency in the installation, maintenance and testing of backflow prevention devices.*** Evidence of current shall be required at the time of permit application and installation. Only licensed sprinkler contractors may install, repair or test backflow prevention devices on fire protection systems.

b. All devices shall be installed in accordance with the manufacturer's instructions, and shall possess appropriate test cocks, fittings and caps required for the testing of the device. All fittings shall be of brass construction, unless otherwise approved by the utility, and shall permit direct connection to department test equipment.

c. The entire device, including valves and test cocks, shall be easily accessible for testing and repair.

- d. All devices shall be placed in the upright position in a horizontal run of pipe.
- e. Device shall be protected from freezing, vandalism, mechanical abuse and from any corrosive, sticky, greasy, abrasive or other damaging environment.
- f. Reduced Pressure Backflow Prevention devices shall be located a minimum of twelve (12") inches plus the nominal diameter of the device above either; 1) the floor, 2) the top of opening(s) in the enclosure or 3) maximum flood level, which ever is higher. Maximum height above the floor surface shall not exceed sixty (60") inches.
- g. Clearance from wall surfaces or other obstructions shall be at least six (6") inches. Devices located in nonremovable enclosures shall have at least twenty-four (24") inches of clearance on each side of the device for testing and repairs.
- h. Devices shall be positioned where a discharge from the relief port will not create undesirable conditions. The relief port must never be plugged, restricted or solidly piped to a drain.
- i. An approved air-gap shall separate the relief port from any drainage system. An approved air-gap shall be at least twice the inside diameter of the supply line, but never less than one (1") inch.
- j. An approved strainer shall be installed immediately upstream of the backflow prevention device, except in the case of a fire protection system.
- k. Devices shall be located in an area free from submergence or flood potential, therefore never in a below grade pit or vault.
- l. All devices shall be adequately supported to prevent sagging.

m. Adequate drainage shall be provided for all devices. Reduced Pressure Backflow Prevention devices shall be drained to the outside when ever possible.

n. Fire hydrant drains shall not be connected to the sewer, nor shall fire hydrants be installed such that backflow/backsiphonage through the drain may occur.

o. Enclosures for outside installations shall meet the following criteria:

1. All enclosures for backflow prevention devices shall be as manufactured by Hydro Cowl or a approved equal.

2. For backflow prevention devices up to and including two (2") inches, the enclosure shall be constructed of 5052-H32 aluminum, or an approved equal material, with a minimum of 1.5" factory manufactured polyisocyanurate insulation in the walls and roof. For backflow prevention devices 2-1/2" and larger, the enclosure shall be constructed of 5052-H32 aluminum, or an approved equal material, with a minimum of 1.5" factory manufactured polyisocyanurate insulation in the walls and 3" factory manufactured polyisocyanurate insulation in the roof.

The complete assembly, **including valve stems and hand wheels**, shall be protected by being inside the enclosure.

3. To provide access for backflow prevention devices up to and including two (2") inches, the enclosure shall be completely removable. Access for backflow prevention devices 2-1/2" and larger shall be provided through a minimum of two access panels. The access panels shall be of the same height as the enclosure and shall be completely removable. All access panels shall be provided with built-in locks.

4. The enclosure shall be mounted to a concrete pad as specified by the manufacturer, but in not case less than four (4") inches thick. The enclosure shall be constructed, assembled and/or mounted in such a manner that it will remain locked and secured to the pad even if any outside fasteners are removed. All hardware and fasteners shall be constructed of 300 series stainless steel.

5. Heating equipment, if required, shall be designed and furnished by the manufacturer of the enclosure to maintain an interior temperature of +40oF with an outside temperature of -30oF and a wind velocity of 15 miles per hour.

p. Where the use of water is critical to the continuance of normal operations or the protection of life, property or equipment, duplicate backflow prevention devices shall be provided to avoid the necessity of discontinuing water service to test or repair the protective device. Where it is found that only one device has been installed and the continuance of service is critical, the utility shall notify, in writing, the occupant of the premises of plans to interrupt water services and arrange for a mutually acceptable time to test the device. In such cases, the utility may require the installation of a duplicate device.

q. The utility shall require the occupant of the premises to keep any backflow prevention devices working properly, and to make all indicated repairs promptly. Repairs shall be made by qualified personnel, possessing valid certification from the Tennessee Department of Environment and Conservation, Division of Water Supply, acceptable to the utility. Expense of such repairs shall be borne by the owner for occupant of the premises. The failure to maintain a backflow prevention device in proper working condition shall be grounds for discontinuance of water service to a premises. Likewise the removal, bypassing or alteration of a backflow prevention device or the installation thereof, so as to render a device ineffective shall constitute a violation of this policy and shall be grounds for discontinuance of water service. Water service to such premises shall not be restored until the

customer has corrected or eliminated such conditions or defects to the satisfaction of the utility.

- (6) **Testing of Devices.** Devices shall be tested at least annually by a qualified person possessing valid certification from the Tennessee Department of Environment and Conservation, Division of Water Supply for the testing of such devices. A copy of this certification shall be on file with the utility for any person installing, repairing or testing backflow prevention devices. Any person installing, repairing or testing backflow prevention devices shall also maintain on file with the utility a current copy of a valid Certificate of Liability Insurance in an amount of not less than \$100,000.00. Records of all installations, repairs and testing shall be submitted to the manager upon completion. Personnel of the Webb Creek Utility District shall have the right to inspect and/or test a device whenever deemed necessary by the utility. Water service shall not be disrupted to test a device without the knowledge of the occupant of the premises. All testing and inspection services are to be at the expense of the owner or occupant of the premises.

All testing, inspection services and repairs are to be at the expense of the owner or occupant of the premises.

Nonpotable Supplies.

The potable water supply made available to a premises served by the public water system shall be protected from contamination as specified in the provisions of this policy. Any water pipe or outlet which could be used for potable or domestic purposes and which is not supplied by the potable water system must be labeled in a conspicuous manner such as:

WATER UNSAFE FOR DRINKING

The minimum acceptable sign shall have black letters at least one (1") inch high located on a red background. Color coding of pipelines, in accordance with Occupational Safety and Health Act guidelines, shall be required in locations

where in the judgment of the utility, such coding is necessary to identify and protect the potable water supply.

Statement Required.

Any person whose premises are supplied with water from the public water system, and who also has on the same premises a well or other separate source of water supply, or who stores water in an uncovered or unsanitary storage reservoir from which the water is circulated through a piping system, shall file with the utility a statement of the nonexistence of unapproved or unauthorized cross connections, auxiliary intakes, bypasses or interconnections. Such statement shall contain an agreement that no cross connections, auxiliary intakes, bypasses or interconnections will be permitted upon the premises. Such statement shall also include the location of all additional water sources utilized on the premises and how they are used. Maximum backflow protection shall be required on all public water sources supplied to the premises.

Fees.

A fee shall be assessed for all backflow prevention devices requiring inspection or testing. The amount of this fee shall be set and adjusted by the utility based on the recommendations of the manager to reflect the cost of providing an effective cross connection control program. The fee shall be assessed each time a device is installed, tested or inspected. Where repeated inspections are required to correct violations or deficiencies, the fee shall be assessed each time the inspection is repeated. The fees assessed shall be as follows:

- 1) Installation/Inspection Fee \$ 20.00

Penalty; Discontinuance of water supply.

- (1) Any person who neglects or refuses to comply with any of the provisions of this policy may be deemed guilty of a misdemeanor, and subject to a fine.

(2) Independent of and in addition to any fines or penalties imposed, the manager may discontinue the public water supply service to any premises upon which there is found to be a cross connection, auxiliary intake, bypass or interconnection; and service shall not be restored until such cross connection, auxiliary intake, bypass or interconnection has been eliminated.

Provision Applicable.

The requirements contained in this policy shall apply to all premises served by the Webb Creek Utility District and are hereby made part of the conditions required to be met for the Webb Creek Utility District to provide water services to any premises. The provisions of this policy shall be rigidly enforced since it is essential for the protection of the public water distribution system against the entrance of contamination. Any person aggrieved by the action of the policy is entitled to a due process hearing upon timely request.

BE IT FURTHER RESOLVED that this policy shall take effect from and after its passage by the board of commissioners of the Webb Creek Utility District, the public welfare requiring it.

Date Adopted June 4, 1997

Revision #1 Dated February 2, 2001