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**Cross Connection Policy**  
**for**  
**THE MADISON SUBURBAN UTILITY DISTRICT**  
**OF DAVIDSON COUNTY, TENNESSEE**

**INTRODUCTION**

**BACKGROUND AND PURPOSE**

In order for the Madison Suburban Utility District of Davidson County, Tennessee (The District) to serve the public and to comply with the regulations of the Environmental Protection Agency and the Tennessee Department of Environment and Conservation and other state and federal regulations, the District has previously established and continues to maintain a cross connection policy and control plan to protect the public's water supply.

The District is run for the benefit of all present and future customers, and while no customer shall intentionally be treated unfairly, no customer shall be treated in a way that compromises the interests of other current and future customers.

**LIMITATIONS**

The District is subject to various city, county, State, federal or other governmental agency requirements and has no discretion to provide service in a manner which would violate such regulations or requirements.

**RECORD KEEPING DURATION**

All records regarding cross connections shall be kept as required by law.

**OMISSIONS**

In the absence of specific rules or policies, the governing board in accordance with its usual and customary practices shall make the disposition of situations involving service. This Policy sets forth uniform requirements for the protection of the public water system for the District from possible contamination, and enable The District to comply with all applicable local, State and Federal laws, regulations, standards or requirements, including the Safe Drinking Water Act of 1996, TCA 68-221-701 to 68-221-720 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 The 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 six (6") 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 six (6") inches.
- (2) **Atmospheric vacuum breaker** shall mean a device, which prevents 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 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, caused 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) **Manager** shall mean the General Manager of The District or his duly authorized deputy, agent or representative.

(14) **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.

(15) **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.

(16) **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.

(17) **Public water supply** shall mean The District 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.

(18) **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.

(19) **"Responsible Party"** is defined as any and all users of or those placing a Demand on the District's water system, including water customers, entities, landlords, property owners, tenants, developers, etc., whether for domestic,

commercial, fire, or irrigation and by such use or demand would be deemed responsible to pay for said usage or demand.

(20) **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 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 District shall comply with Section 68-221-711 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 District and/or customer unless the water supply system is protected as required by state laws and this District. Notwithstanding and not limited to the following, The District requires commercial accounts, fire systems, irrigation systems, etc. to have an appropriate backflow prevention device to protect the public water system and in certain cases may require such devices be placed in parallel to other assemblies, the general welfare of the customer requiring it. Service of water to any premises shall be discontinued by The District 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 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 District and/or their duly authorized agents shall conduct inspections and evaluations, and shall require correction of violations in accordance with the provisions of this Policy.

### **Permit Required**

#### **New Installations**

No installation, alteration, or change shall be made to any backflow prevention device connected to the public water supply for water service, fire protection or any other purpose without first contacting The District for approval.

#### **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 from The District. No new sign-up where a backflow exists or should exist shall have water established until such backflow is tested and passed or installed in accordance to this policy and having been tested and passed.

#### **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 re-inspection shall be based on potential health hazards involved, and shall be established by The District in accordance with guidelines acceptable to the Tennessee Department of Environment and Conservation.

#### **Right of Entry for Inspections**

(2) The manager or his authorized representative shall have the right to enter, at any reasonable time, any property served by a connection to The District's 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, the manager or his representative shall assign an appropriate amount of time, 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 a High Risk High Hazard or High Hazard, with the immediate possibility of contaminating the public water system, The 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 68-221-711 and/or its amendments, 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) An approved backflow prevention assembly shall be installed downstream of the meter on each 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 where The District requires same, when the Department of Environment and Conservation requires same and/or otherwise where any of the following conditions exist:

- 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 District that the water use and protective features of the plumbing are such as to pose no threat to the safety or potability of the water;

c. The nature and mode of operation within a premise 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 or other water source enters the premises served by the public water system.

(2) The protective devices shall be of the reduced pressure zone type (except in the case of certain fire protection systems and swimming pools with no permanent plumbing installed) approved by the Tennessee Department of Environment and Conservation and The District as to manufacture, model, size and application. The method of installation of backflow prevention devices shall be approved by The District 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 and/or occupant of the premises.

### **(3) Premises Requiring Reduced Pressure Principle Assemblies**

#### **High Risk High Hazards**

Establishments which pose significant risk of contamination or may create conditions which pose an extreme hazard of immediate concern (High Risk High Hazards), the cross-connection control inspector shall require immediate or a short amount of time (14 business days maximum), depending on conditions, for corrective action to be taken. In such cases, if corrections have not been made within the time limits set forth, water service will be discontinued.

High Risk High Hazards are required to have reduced pressure principle assemblies in parallel to each other. The following non-comprehensive list of establishments is deemed to be high risk high hazard in accordance with State guidelines.

#### **A. High Risk High Hazards:**

- 1) Mortuaries, morgues, autopsy facilities
- 2) Hospitals, medical buildings, animal hospitals and control centers, doctor and dental offices
- 3) Sewage treatment facilities, water treatment, sewage and water treatment pump stations
- 4) Premises with auxiliary water supplies or industrial piping systems
- 5) Chemical plants (manufacturing, processing, compounding, or treatment)
- 6) Laboratories (industrial, commercial, medical research, school)
- 7) Packing and rendering houses



- 8) Manufacturing plants
- 9) Food and beverage processing plants
- 10) Automated car wash facilities
- 11) Extermination companies
- 12) Airports, railroads, bus terminals, piers, boat docks
- 13) Bulk distributors and users of pesticides, herbicides, liquid fertilizer, etc.
- 14) Metal plating, pickling, and anodizing operations
- 15) Greenhouses and nurseries
- 16) Commercial laundries and dry cleaners
- 17) Film Laboratories
- 18) Petroleum processes and storage plants
- 19) Restricted establishments
- 20) Schools and Educational Facilities
- 21) Animal feedlots, chicken houses, and CAFOs
- 22) Taxidermy facilities
- 23) Establishments which handle, process, or have extremely toxic or large amounts of toxic chemicals or use water of unknown or unsafe quality extensively.

## **B. High Hazard**

In cases where there is less risk of contamination, or less likelihood of cross-connections contaminating the system, a time period of (90 days maximum) will be allowed for corrections. High hazard is a cross-connection or potential cross-connection involving any substance that could, if introduced in the public water supply, cause death, illness, and spread disease. (Consult the manual of the State of Tennessee Division of Water Supply Tennessee Department of Environment and Conservation: Cross-Connection Manual).

(4) **Applications requiring backflow prevention devices** shall include, but shall not be limited to, domestic water service and/or fire flow connections for all 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 fires. Those facilities deemed by The District as needing protection.

a. Class 1, Class 2 and Class 3 fire protection systems shall generally require a double check detector assembly and also a double check assembly shall be required where a hydrant or other point of use exists on the private system; except 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.

d. Swimming pools with no permanent plumbing and only filled with hoses will require a hose bibb vacuum breaker be installed on the faucet used for filling.

(5) 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.

(6) Installation Criteria The District shall follow at a minimum the State's Cross-Connection installation criteria requirements with one noted exception that the minimum will be twelve inches (12") and not twenty-four inches (24") for non-removable enclosure so as to avoid using excessive customer space. The District realizes there maybe physical limitations to the State or manufacture minimums which may be unachievable for some devices particularly to assure that the maximum of 5 feet above (floor) grade is not exceeded when the OS and Y valve stems are in the open position the drainage minimum may be less than the State's and/or manufacture's suggested minimum and the required distance between the device and the (floor) grade will be determined by The District during the design phase for the necessary minimum allowable as well as the drain size allowable so as to prevent submergence of the device in case of discharge. The District may enhance its design criteria above those minimum levels.

(7) Testing of Devices Devices shall be tested at least annually by the District by a qualified person possessing a valid certification from the Tennessee Department of Environment and Conservation, Division of Water Supply for the testing of such devices. A record of this test will be on file and a copy of this report will be supplied to the customer. Water service should not be disrupted to test a device without the knowledge of the occupant of the premises whenever possible.

(8) Retro Fitting The District encourages the owner and/or customer to retro fit and upgrade its backflow system to current District criteria standards for backflow installation when practicable, where previous installation of that device had met the then District criteria standards but any and all relocations or upgrades caused by the customer shall conform to current District criteria standards.

#### *Non-potable 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 also 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 (OSHA) Occupational Safety and Health Act guidelines shall be required in locations where in the judgment of the District 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 in a non potable reservoir or a potable reservoir not maintained from which the water is circulated through a piping system, shall file with the District 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 these premises.

#### **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 by the appropriate authorities.

(2) Independent of and in addition to any fines or penalties and/or fees 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 and/or properly protected.

#### **Provision Applicable**

The requirements contained in this policy shall apply to all premises served by the District and are hereby made part of the conditions required to be met for the 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 first stated in writing the nature of the complaint to the general management of the District and if the problem is not resolved then by appeal in writing to the Board of Commissioners. Notwithstanding

any reasonable fear that the public water supply will be contaminated the District has the right to prevent such contamination by requiring proper devices or their repair and/or discontinuance of service as the case may be.

Fees, Fines and Penalties Compliance Dates and Charges for Expenses, etc.

The customer(s) and/or responsible parties have a duty to pay the cost of their use and services, etc. in fulfilling their obligations under this policy. Thusly, the District may establish fees, fines or penalties and set compliance dates related to the ongoing and enforcement of this policy and any control plan established hereunder or related hereto which were previously established. Also any other expenses, materials, attorneys fees, court costs, etc. related to enforcement of this policy may be recovered from any and all the customers, landowners and/or responsible parties or persons

Health Departments / Fire Departments

This policy is subject to the discretion of the Department of Health for the State of Tennessee and applicable local government in their efforts to protect public health. The District, then, to the extent the law mandates, shall follow the requirements of its own policies and all other applicable laws to require when and where devices are to be installed, and when and where devices it/they require service or the disconnect of service. The District is permitted and encouraged under this policy to solicit these agencies help in The District's efforts to protect the public water supply and public health,

**Adoption Date** October 26, 2010

**Effective Date** \_\_\_\_\_

  
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State Approval Signature

**Date:** 11/4/10

  
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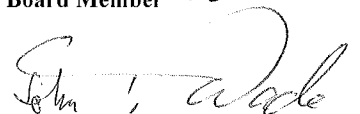
Board President Signature

**Date:** 10-26-2010

  
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Board Member

**Date:** 10-26-2010

  
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Board Member

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