

Cross Connection Ordinance

2015-11-10-02

for the

Town of Brighton

INTRODUCTION

This Introduction has been attached to the Ordinance to assist the Town of Brighton in the implementation of the ordinance. It is not actually a part of the ordinance. Any requests for a copy of this ordinance by a customer should not include a copy of this Introduction.

BACKGROUND AND PURPOSE

In order for the Town of Brighton 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 Town must establish a cross connection ordinance and program to protect the public's water supply.

The Town of Brighton Water System 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 Town of Brighton Water System 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 indefinitely.

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 Ordinance sets forth uniform requirements for the protection of the public water system for the Town of Brighton from possible contamination, and enable the Town 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 Ordinance are to:

- (1) To protect the public potable water system of Town of Brighton 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 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, 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) **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 Town of Brighton 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 Public Works Director of the Town of Brighton 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 Town of Brighton 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 Town of Brighton 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 Town of Brighton unless the water supply system is protected as required by state laws and this Ordinance. Service of water to any premises shall be discontinued by the Town of Brighton if a backflow prevention device required by this Ordinance 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 Town of Brighton Water System.



(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 Town of Brighton shall conduct inspections and evaluations, and shall require correction of violations in accordance with the provisions of this Ordinance.

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 Town of Brighton Water System Manager 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 Town of Brighton Water System Manager.

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 Town of Brighton 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 Town of Brighton 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 Ordinance shall be allowed a reasonable time within which to comply with the provisions of this Ordinance. 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 an extreme hazard, with the immediate possibility of contaminating the public water system, the Town of Brighton Water System 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 Ordinance and Tennessee Code Annotated, Section 68-221-711, 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) 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, when 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 Town of Brighton Water System Manager 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 Town of Brighton Water System, as to manufacture, model, size and application. The method of installation of backflow prevention devices shall be approved by the Town of Brighton Water System prior to installation and shall comply with the criteria set forth in this Ordinance. The installation and maintenance of backflow prevention devices shall be at the expense of the owner or occupant of the premises.

(3) Premises Requiring Reduced Pressure Principle Assemblies or Air Gap Separation

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 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 require a reduced pressure principle (or detector) assembly. The following list is establishments deemed high risk high hazard and require a reduced pressure principle assembly:

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. (See Appendix A of 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 Town of Brighton Water System as needing protection.



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.

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 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 Ordinance, by a person approved by the Town of Brighton Water System who is knowledgeable in the proper 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 (except hose bibb vacuum breakers). All fittings shall be of brass construction, unless otherwise approved by the Town of Brighton Water System, 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, whichever 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 non-removable 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. All devices shall be adequately supported to prevent sagging.



(l) Adequate drainage shall be provided for all devices. Reduced Pressure Backflow Prevention devices shall be drained to the outside whenever possible.

(m) Fire hydrant drains shall not be connected to the sewer, nor shall fire hydrants be installed such that backflow/back-siphonage through the drain may occur.

(n) Enclosures for outside installations shall meet the following criteria:

1. All enclosures for backflow prevention devices shall be as manufactured by a reputable company or an approved equal.
2. For backflow prevention devices up to and including two (2") inches, the enclosure shall be constructed of adequate material to protect the device from vandalism and freezing and shall be approved by the Town of Brighton Water System. 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 in no 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 +40°F with an outside temperature of -30°F and a wind velocity of 15 miles per hour.

(o) 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 Town of Brighton Water System 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 Town of Brighton Water System may require the installation of a duplicate device.

(p) The Town of Brighton Water System 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 acceptable to the Town of Brighton Water System. 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 Ordinance 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 Town of Brighton Water System Manager.

(6) Testing of Devices Devices shall be tested at least annually 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 with the Town of Brighton Water System Manager and a copy of this report will be supplied to the customer. Water service shall not be disrupted to test a device without the knowledge of the occupant of the premises.



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 Ordinance. 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 (OSHA) Occupational Safety and Health Act guidelines, shall be required in locations where in the judgment of the Town of Brighton Water System Manager, 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 Town of Brighton Water System Manager 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.

Penalty; Discontinuance of water supply

- (1) Any person who neglects or refuses to comply with any of the provisions of this Ordinance 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 Ordinance shall apply to all premises served by the Town of Brighton Water System and are hereby made part of the conditions required to be met for the Town of Brighton Water System to provide water services to any premises. The provisions of this Ordinance 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 Ordinance is entitled to a due process hearing upon timely request.



Town of Brighton, Tennessee

Date of First Reading October 13, 2015

Date of Second Reading November 10, 2015

Adoption Date November 10, 2015

Effective Date November 12, 2015

Lew E. Hylle **Date:** 4-1-16
State Approval Signature

Sarah Croker **Date:** 11/10/15
Mayor

John Ratt **Date:** 11/10/15
Aldersperson

Stephanie Washam **Date:** 11/10/15
Aldersperson

David Hylle **Date:** 11/10/15
Aldersperson

Melinda Sauter **Date:** 11/10/15
Aldersperson



Town of Brighton Cross-Connection Control Plan

I. Introduction

A. Goal

The goal of Brighton Water Department is to supply safe water to each and every customer under all foreseeable circumstances. Each instance where water is used improperly so as to create the possibility of backflow due to cross connections threatens the health and safety of customers and chances of realizing this goal. The possibility of backflow due to improper use of water within the customer's premises is especially significant because such cross connections may easily result in the contamination of our water supply mains. Such situations may result in the public water system becoming a transmitter of diseased organisms, toxic materials, or other hazardous substances that may adversely affect large numbers of people. The only protection against such occurrences is the elimination of such cross connections or the isolation of such hazards from the water supply lines by properly installed approved backflow prevention assemblies. The Brighton Water Department must continue maintenance of a continuing program of cross connection control to systematically and effectively prevent the contamination or pollution of all potable water systems.

B. Plan of Action

The Brighton Water Department is determined to take every reasonable precaution to ensure that cross connections are not allowed to contaminate the water being distributed to its customers. This Cross Connection Control Plan outlines a course of action designed to control cross connection within the area served by the utility. This plan is intended to be a practical guide for safeguarding the quality of water distributed from becoming contaminated or polluted through backflow. By following the plan of action, the Brighton Water Department will ensure that all aspects of the Ordinance on Cross Connection Control are being followed by customers.

II. Authority for Cross Connection Control

A copy of the Ordinance, adopted November 10th, 2015 by the Board of Mayor and Aldermen is attached to this plan as Appendix 1. This Ordinance prohibits cross connections within water systems, authorizes the water system to make inspections of the customer's premises, requires that cross-connection hazards be corrected and provides for enforcement. This Ordinance expresses clear determination on the part of the Board that the water system is to be operated free of cross-connections that endanger the health and safety of those depending upon the public water supply. This Ordinance is considered to be a sound basis for the control of cross-connection hazards by the operating staff and management of the Brighton Water System. The provisions contained within this Ordinance are in keeping with the requirements set forth in Section 68-221-711 (6) of Tennessee Code Annotated and Section 0400-45-01.17(6) of Tennessee Department of Environment and Conservation Rules governing Public Water Systems.

III. Program To Be Pursued

The Brighton Water System will establish an active on-going cross-connection control program. This program is to be a continuing effort to locate and correct all existing cross-connection hazards and to discourage the creation of new problems. Safeguarding the quality of water being distributed to our customers is a high priority concern of the management of the Town.

A. Staffing

The Brighton Water System has designated an individual to see that the program to control cross-connections is pursued in an aggressive and effective manner. It is proposed that ample time will be devoted to the program to ensure its effectiveness. Additional personnel will be added as is deemed necessary.

Johnny Payne- Cross-Connection Control Coordinator

B. Cross-Connection Control Surveys/Inspections

A representative of the Town will survey the distribution system using the "Cross Connection Survey" form for all customers, both residential and nonresidential, for possible cross-connections. If it is determined from the survey form that possible cross-connections may exist, the premise will be inspected. The need for backflow protection will be determined based on the results from the inspection. Notification of the type of backflow prevention assembly required and a date of compliance will be sent to the customer.

Non-Residential:

All new installation nonresidential and commercial establishments (or those converting from residential to non-residential or commercial) are required to have a Town approved reduced pressure backflow preventer installed. If there are existing establishments that have not been inspected, a list agreed upon by the State (based on risk and public safety) and time line for inspection by the water provider will be generated. All non-residential establishments not having a Town approved reduced pressure backflow assembly will be inspected every 5 years. If establishment changes ownership (name listed on water bill), if plumbing permits are issued or irrigation systems installed, then an inspection will need to be performed within 30 days. The need for backflow protection will be determined based on the results from the inspection. Notification of the type of backflow prevention assembly required and a date of compliance will be sent to the customer. (Attached is a list of criteria for requiring assemblies-Appendix A)

Residential:

For new residential customers, a written questionnaire (the “Cross Connection Survey” form) will be given upon request for water service. If the survey reveals that a potential cross-connection may be present, an inspection is to be performed. The need for backflow protection will be determined based on the results from the inspection. Notification of the type of backflow prevention assembly required and a date of compliance will be sent to the customer. Each new residential customer will agree to not create cross-connections and a brochure will be given to each new customer describing cross-connections and the responsibility of the customer in not creating one. Each new customer shall sign the “Cross Connection Prevention Agreement”.

If the “Cross Connection Survey” form reveals that the new customer may have any of the following, an inspection will be required:

1. Lawn irrigation systems
2. Residential fire protection systems (closed loop systems will require a double check valve minimum)
3. Pools, Saunas, Hot Tubs, Fountains
4. Auxiliary Intakes and Supplies-wells, cistern, ponds, streams, etc.
5. Home water treatment systems
6. Hobbies that require extensive amounts of toxic chemicals (taxidermy, metal plating, biodiesel, ethanol production, etc.)
7. Any other situations or conditions listed in the manual or conditions deemed a threat by the water system.

“Cross Connection Survey” forms will be sent to existing residential customers to determine if potential cross-connections exist. The distribution system will be entirely surveyed every five years. The distribution system will continue to be surveyed in this manner. Survey forms that reveal potential cross-connections based on the criteria above will be inspected and a determination if backflow prevention assemblies are needed.

The system will be surveyed for residential lawn irrigation systems through the survey forms received and by secondary meters. All residential lawn irrigation systems will require a reduced pressure backflow assembly. Residential customers with pools, saunas, hot tubs not filled by a hard pipe directly or indirectly connected will be required to use an atmospheric vacuum breaker at the hose bibb. However, if the pool or vessel is connected directly or indirectly by a hard line, a Town approved reduced pressure backflow assembly shall be required at minimum.

Residential customers required to have backflow prevention assemblies will be informed of possible thermal expansion problems within the establishment and correction of the condition.

Well System Inspections:

Wells drilled on properties that are supplied by a public water system will need to be inspected to ensure separation or the premises will require a Town approved reduced pressure backflow assembly.

Wells that are drilled within the area of the distribution system within the last calendar year are inspected and a "Well User Agreement" shall be signed between the Town and the customer. A list of existing wells that do not have a well user's agreement within the distribution area will be generated and ten (10) wells per year will be inspected until the entire list has been completed. Any well system that is connected directly or indirectly to the water system is required to disconnect or install a Town approved reduced pressure backflow assembly. The customer will be required to sign a "Well User Agreement" if no assembly is required. It is recommended that inspections be performed on new listings within the year, and then perform inspections on existing, un-inspected wells. The list is updated at the local environmental field office and is available to the water system.

When new lines are constructed in areas that have been mainly supplied by well systems, all new customers will be surveyed and inspected.

C. Public Education and Awareness Efforts

The Brighton Water System recognizes that it is important to inform its customers of the health hazards associated with cross-connections and to acquaint them with the program being pursued to safeguard the quality of water being distributed. The Town will seek to use every practical means available to acquaint the customers with the health hazards associated with cross-connections in an effort to get cooperation. Use of customer "Cross Connection Survey" forms, annual newspaper notices and annual notices to customers with known cross connections will be incorporated into the notification plan.

Information will be provided to all customers about cross-connection control and backflow prevention by individual pamphlets or through a notice in the local newspaper at least once per year. A brochure will be given to all new customers requesting water service describing cross-connections and prevention of backflow.

The following measures may also be used to inform customers about the need to control cross-connections:

1. Posters at the counter where the water bills are paid displayed one month out of the year
2.
 - a. Personal visits to commercial, industrial, institutional, and agricultural customers to explain the need for controlling cross-connections.
 - b. Whenever possible, any such potential customer will be informed of needed cross-connection measures in the design or construction stage.

D. Customer's Responsibility

Cross-connections, created and maintained by the customer for his convenience endanger the health and safety of all who depend upon the public water supply. Therefore, the customer who creates a cross-connection problem shall bear the expense of providing necessary backflow protection and for keeping the protective measures in good working order. This includes repair, testing, installation, etc.

E. Enforcement

Where cross-connections are found to exist, the Brighton Water System will require the problem to be eliminated or isolated by a properly installed, Town approved backflow prevention assembly to prevent the possibility of backflow into the distribution system. Such protective measures will include a backflow prevention assembly on the customer's water service line ahead of any water outlets. Every effort will be made to secure the voluntary cooperation of the customer in correcting cross-connection hazards. If voluntary action cannot be obtained with time set forth by written notice (30 days maximum for high and low hazard, 14 days maximum for high risk high hazards) to the customer, water service will be discontinued until conditions are in line with the Town's Ordinance for the protection of the health and safety of the water distribution system.

After surveys or inspections have been completed, the establishments will be contacted by written correspondence outlining any correction (adding or repairing backflow prevention devices) needed and the time schedule allowed for correction of conditions. If the conditions have not been corrected by the time allotment (30 days maximum for high and low hazard, 14 days maximum for high risk high hazards), the water service will be discontinued to the establishment.

The Brighton Water System may give additional warnings of discontinuance before the water service is discontinued. The time period for correction will be determined by the Town based on the seriousness of the hazard and risk of contamination, ranging from immediate correction or time period of up to 30 days. The maximum allowable time for correction will be no more than 30 days. Those sites deemed high risk high hazard are corrected within a maximum limit of 14 business days, preferably immediate correction. If the conditions do not satisfy the Town's Ordinance or Plan within 30 days, water service will be discontinued. In the case of backflow prevention devices on fire systems, it is recommended that the fire marshal be contacted before water service is discontinued, to prevent harm to anyone in case a fire occurs in a public building. The fire marshal can condemn the building, thus not allowing anyone to enter.

Water service will not be allowed to the establishment until all corrections have been made and all conditions of the Ordinance and Plan have been satisfied.

IV. Procedures for Inspections:

The Brighton Water System hopes that its efforts to acquaint its customers with the hazards of cross-connections will be successful to the point that the customer will try to maintain their internal water delivery system free of cross-connections. It is recognized that many customers may not recognize that they have a situation that would permit backflow into the water supply lines. Therefore, a thorough investigation will be made of all premises considered likely to have cross-connections. Such inspections will involve the customer's entire water using equipment, and other system components in an effort to locate all actual and potential cross-connections. The findings will be reported to the owner or occupant in writing along with a request for needed corrective action necessary to properly protect the public water system.

A. Field Visit Procedures:

During the inspection, a "Field Sheet" will be completed showing details of significant findings. The hazards which cross-connections pose will be explained fully to the persons assisting the inspection. The customer will be informed that the information gathered during the inspection will be reviewed by the Town's Cross Connection Control Coordinator and that a written report containing any recommendations and requirements will be mailed to them as soon as possible.

B. Reports to Customers:

The findings of the investigation will be summarized and a written report will be sent to the person assisting in the investigation, or the ranking management official of the establishment. Cross-connections found will be described briefly along with recommended method of correction. An effort will be made to keep the description of the findings and recommendations clear, concise and as brief as possible. The correspondence will indicate a willingness to assist with questions. The customer will be given a time limit for making the needed corrections depending (maximum of 30 days) upon the seriousness of the cross-connections involved and upon the complexity and difficulty of correcting the problems.

C. Follow-up Visits and Re-inspections

Follow-up visits will be made as needed to assist the customer and to assure that satisfactory progress has been made. Such visits will continue until all corrective actions have been completed to the satisfaction of the water system.

D. Installation of Backflow Prevention Devices:

Where the customer is asked to install a backflow prevention assembly, the customer will be supplied with a list of acceptable and approved assemblies. In addition, minimum acceptable installation criteria will be supplied. It will be pointed out that a unit cannot be accepted until the water system has verified that the installation fully meets the installation criteria and has been tested to verify that the assembly has a status of Passed.

Such backflow prevention assemblies must have a make, model, and orientation currently listed as acceptable by the both the water system and Tennessee Department of Environment and Conservation.

E. Technical Assistance:

The customer will be urged to notify the water system when they are ready to begin installing a Town approved backflow preventer assembly. The Town's cross-connection representative will visit the site to detail how the unit(s) must be installed to achieve the desired protection and to minimize maintenance and testing problems.

V. Premises Requiring Reduced Pressure Principle Assemblies

A. High Risk High Hazards

When 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 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 require a Town approved reduced pressure principle (or detector) assembly. The following list is establishments deemed high risk high hazard and require a reduced pressure principle assembly:

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 30 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. High hazards require a Town approved reduced pressure backflow assembly. (See "Illustration A")

VI. Premises Requiring Double Check Valve Assemblies

Low Hazard

Low hazard is a cross-connection or potential cross-connection involving any substance that would not be a health hazard but would constitute a nuisance or be aesthetically objectionable if introduced into the public water supply. Low Hazards are protected by double check valve assemblies at minimum.

VII. Inspection and Testing of Backflow Prevention Assemblies

A. Approval of New Installations

The Water System will not consider the installation of assemblies to be complete until:

1. The installation has been inspected, and approved by the Town based on installation criteria; and
2. Assembly is tested initially and has a status of Passed.

B. Routine Inspection and Testing of Assemblies

To assure that all assemblies are functioning properly, assemblies must be tested within a 12 month (365 days from last test) period by backflow prevention assembly testers with a Certificate of Competency. If assembly is not tested within the 12 month period, enforcement action will be started. In conjunction with testing the assembly the approved tester will investigate to determine:

1. That cross-connections, actual or potential, have not been added ahead of the protective assemblies,

2. The assembly meets all installation criteria; and
3. The assembly has not been bypassed or altered in some other way to compromise the backflow protection.

All reduced pressure and double check valve backflow prevention assemblies, including detector assemblies, utilized for the protection of the water system will be tested by a person possessing a valid Certificate of Competency from the State and approved by the water system in keeping with the following criteria:

1. Immediately following installation;
2. At least every 12 months;
3. Any time assemblies have been partially disassembled for cleaning and/or repair and;
4. Where there is indication that the unit may not be functioning properly (i.e. excessive or continuous discharges from relief valve, chatter, or vibration of internal parts).

C. Accepted Test Procedure

Tests of assemblies will be made using a 3 or 5 valve test kit that has valid annual certification in accordance to the latest approved testing procedure from the Division of Water Supply.

D. Official Tests

Only tests performed by persons possessing a valid Certificate of Competency will be considered official tests by the Town. All test reports submitted must be of the type approved by the Division of Water Supply and provided by the Town. All parts of testing procedure must be recorded accurately on the test report with a determination of status (Passed or Failed). Certificates of Competency are not transferrable. Town employees are prohibited from performing annual testing for customers.

E. Prior Arrangements for Testing

Prior arrangements will be made for a mutually agreeable time for testing the assemblies prior to performing the test. In all cases, the time which water services are interrupted will be held to a minimum in order to minimize the inconvenience to the customer.

F. Repairs

Should a protective assembly be found defective or have a status of Failed, the Town will require the assembly to be repaired promptly with manufacturer's specified parts, in accordance to manufacturer's suggested procedure, and placed in proper operating condition within a (specified) time limit (maximum 30 days, 14 days for high risk high hazards). Following repairs, the assembly is to be tested again to verify that it is meeting performance standards and have a status of Passed. The owner will be held responsible for maintaining protective measures in a good state of repairs. The owner of an assembly needing repairs or maintenance will be permitted to do the work, if such owner is

properly qualified or the owner may elect to secure the services of someone else experienced in the repair of the assemblies. Town employees are prohibited from installing, repairing or replacing assemblies for customers.

VIII. Parallel Units

The water system may require the installation of parallel assemblies if the customer cannot readily accommodate interruptions of water service for periodic testing and repairs of the assemblies.

IX. Records

Good records are invaluable in the Town's efforts to safeguard the quality of water being distributed against degradation from backflow through cross-connections. Adequate records will be maintained as a part of the Town's permanent files to:

- A.** Document the overall effort of the water system to properly discharge its responsibility to see that each customer receives a safe water under all foreseeable circumstances;
- B.** Give a complete picture as to the current status and history of the individual premises regarding the potential for backflow, corrections made, etc.;
- C.** To support enforcement action, whenever necessary, to obtain backflow protection; and
- D.** Document that assemblies have been properly installed, maintained, and tested routinely.

Records to be maintained by the Town will include, but not necessarily be limited to the following;

- A.** Master List of all Establishments with assemblies used for premise isolation, including location, assembly used, make, model, size, serial number etc.;
- B.** Correspondence between water system and its customers
- C.** Copy of Approved Ordinance
- D.** Copy of Approved Plan
- E.** Test reports for each assembly
- F.** Copies of Certificates of Competency for each tester
- G.** Copies of test kit certifications
- H.** Site Inspection Reports
- I.** Residential written surveys
- J.** Backflow incident reports
- K.** Records on initial surveys, recommendations, follow-up, corrective action, routine re-inspections, etc.
- L.** A file system designed to call to the attention of the cross-connection control personnel when testing and re-inspections of premises are needed.
- M.** Public education pamphlets and information.

X. Backflow Contamination Procedures:

If contamination is caused by backflow, the Brighton Water System will take the following actions to protect the health of the customer:

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

XI. Modifications to Plan

This plan may be modified from time to time to meet the needs of the utility and to meet the states requirements. The Plan and Ordinance will be reviewed by the Town every five (5) years to determine if the existing plan meets requirements set forth by the Division of Water Supply and that it promotes an ongoing program. The Public Works Director shall be authorized to modify, as needed, this plan without the approval of the water system's governing body. The Public Works Director shall report any modifications to this plan to the board for their information, in a timely manner. The Public Works Director shall also advise the local environmental field office of any changes to this plan for their review and comments.

XII. Approval Signatures



 State Approval Signature



 Mayor's Signature



 Public Works Director's Signature

Date: 4-1-16

Date: 4-1-16

Date: 04-01-2016