

AN ORDINANCE TO GOVERN CROSS CONNECTIONS
IN THE MUNICIPAL WATER SYSTEM

BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE VILLAGE OF ST. ELIZABETH, MISSOURI, AS FOLLOWS:

Section I. Cross Connection Control – General Policy

A. Purpose. The purpose of this ordinance is:

1. To protect the public potable water supply of the Village of St. Elizabeth from contamination or pollution by containing within the consumer's internal distribution system or private water system contaminants or pollutants which could backflow through the service connection into the public potable water supply system.
2. To promote the elimination, containment, isolation, or control of existing cross connections, actual or potential, between the public or consumer's potable water system and non-potable water system, plumbing fixtures, and industrial-process systems.
3. To provide for the maintenance of continuing program of cross connection control which will systematically and effectively prevent the contamination or pollution of all potable water systems.

B. Application. This ordinance shall apply to all premises served by the public potable water system of the Village of St. Elizabeth, Missouri.

C. Policy.

It is the Village's intent to recognize the varying degrees of hazard and to apply the principle that the degree of protection shall be commensurate with the degree of hazard.

The Village shall be primarily responsible for protection of the public potable water distribution system from contamination or pollution due to backflow of contaminants or pollutants through the water service connection. The cooperation of all consumers is required to implement and maintain the program to control cross connections. The Village and consumer are jointly responsible for preventing contamination of the water system.

If, in the judgment of the Village or its authorized representative, cross connection protection is required through either piping modification or installation of an approved backflow prevention assembly, due notice shall be given to the consumer. The consumer shall immediately comply by providing the required protection at his or her own expense; and failure, refusal, or inability on the part of the consumer to provide such protection shall constitute grounds for discontinuing water service to the premises until such protection has been provided.

Section II. Definitions

- A. The definitions listed in Appendix A shall apply in the interpretation and enforcement of this ordinance.

Section III. Cross Connections Prohibited

- A. No water service connection shall be installed or maintained to any premises where actual or potential cross connections to the public potable or consumer's water system may exist unless such actual or potential cross connections are abated or controlled to the satisfaction of the Village, and as required by the laws and regulations of the Missouri Department of Natural Resources.
- B. No connection shall be installed or maintained whereby an auxiliary water supply may enter a public potable or consumer's water system unless such auxiliary water supply and the method of connection and use of such supply shall have been approved by the Village and the Missouri Department of Natural Resources.
- C. No water service connection shall be installed or maintained to any premises in which the plumbing system, facilities, and fixtures have not been constructed and installed using acceptable plumbing practices considered by the Village as necessary for the protection of health and safety.

Section IV. Survey and Investigations

- A. The consumer's premises shall be open at all reasonable times to the Village, or its authorized representative, for the conduction of surveys and investigations of water use practices within the consumer's premises to determine whether there are actual or potential cross connections to the consumer's water system through which contaminants or pollutants could backflow into the public potable water system.
- B. On request by the Village or its authorized representative, the consumer shall furnish information on water use practices within his premises.
- C. It shall be the responsibility of the water consumer to conduct periodic surveys of water use practices on his or her premises to determine whether there are actual or potential cross connections to his or her water system through which contaminants or pollutants could backflow into the public potable water system.

Section V. Type of Protection Required

The type of protection required by this ordinance shall depend on the degree of hazard which exists, as follows:

- A. An approved air gap separation shall be installed where the public potable water system may be contaminated with substances that could cause a severe health hazard.
- B. An approved air gap separation or an approved reduced pressure principle backflow prevention assembly shall be installed where the public potable water system may be contaminated with a substance that could cause a system or health hazard.
- C. An approved air gap separation or an approved reduced pressure principle backflow prevention

assembly or an approved double check valve assembly shall be installed where the public potable water system may be polluted with substances that could cause a pollutional hazard not dangerous to health.

Section VI. Where Protection is Required

- A. An approved backflow prevention assembly shall be installed on each service line to a consumer's water system serving premises where, in the judgment of the Village or the Missouri Department of Natural Resources, actual or potential hazards to the public potable water system exist. The type and degree of protection required shall be commensurate with the degree of hazard.

- B. An approved air gap separation or reduced pressure principle backflow prevention assembly shall be installed at the service connection or within any premises where, in the judgement of the Village or the Missouri Department of Natural Resources, the nature and extent of activities on the premises, or the materials used in connection with the activities, or material stored on the premises, would present an immediate and dangerous hazard to health should a cross connection occur, even though such cross connection may not exist at the time the backflow prevention assembly is required to be installed. This includes but is not limit to the following situations:
 - 1. Premises having an auxiliary water supply, unless the quality of the auxiliary supply is acceptable to the Village and the Missouri Department of Natural Resources.
 - 2. Premises having internal cross connections that are not correctable, or intricate plumbing arrangements which make it impractical to ascertain whether or not cross connections exist.
 - 3. Premises where entry is restricted so that inspection for cross connections cannot be made with sufficient frequency or at sufficiently short notice to assure the cross connections do not exist.
 - 4. Premises having a repeated history of cross connections being established or reestablished.
 - 5. Premises, which due to the nature of the enterprise therein, are subject to recurring modification or expansion.
 - 6. Premises on which any substance is handled under pressure so as to permit entry into the public water supply, or where a cross connection could reasonably be expected to occur. This shall include the handling of process waters and cooling waters.
 - 7. Premises where materials of a toxic or hazardous nature are handled such that if backsiphonage or backpressure should occur, a serious health hazard may result.

- C. The types of facilities listed in Appendix B fall into one or more of the categories of premises where an approved air gap separation or reduced pressure principle backflow prevention assembly is required by the Village and the Missouri Department of Natural Resources to protect the public water supply and must be installed at these facilities unless all hazardous or potentially hazardous conditions have been eliminated or corrected by other methods to the satisfaction of the Village and the Missouri Department of Natural Resources.

- D. The type of facility listed in Appendix C are premises where an approved double check valve assembly is required by the Village and the Missouri Department of Natural Resources as the minimum level of protection for the public water supply and must be installed at these facilities

unless all hazardous or potentially hazardous conditions have been eliminated or corrected by other methods to the satisfaction of the Village and the Missouri Department of Natural Resources.

- E. Customer facilities not listed in Appendix B or C may be designated a backflow hazard by written notification from the Village. The notice shall specify the nature of the customer activity that necessitates designation of the facility as a backflow hazard, the type of backflow protection required and the date by which the customer shall install or construct the required assembly.

Section VII. Backflow Prevention Assemblies

- A. Any backflow prevention assembly required to protect the facilities listed in Appendix B and C shall be of a model or construction approved by the Village and the Missouri Department of Natural Resources.
 - 1. Air gap separation to be approved shall be at least twice the diameter of the supply pipe, measured vertically above the top rim of the receiving vessel, but in no case less than one inch.
 - 2. A double check valve assembly for Class II hazards or a reduced pressure principle backflow prevention assembly for Class I hazards shall be approved by the Village, and shall appear on the current list of approved backflow prevention assemblies maintained by the Missouri Department of Natural Resources (Double Check Valve Assemblies and Reduces Pressure Backflow Prevention Assemblies approved by the University of Southern California's Foundation for Cross Connection Control and Hydraulic Research).

Section VIII. Installation

- A. Backflow prevention assemblies required by this ordinance shall be installed at a location and in a manner approved by the Village and shall be installed at the expense of the water consumer.
- B. Backflow prevention assemblies shall be installed and in an orientation as specified by the manufacturer. The Department of Natural Resources maintains a list of approved backflow prevention assemblies and the orientation allowed for each assembly.
- C. Modification to an assembly using spare parts other than those of the original manufacturer invalidates the approval of the device.
- D. No bypass piping shall be allowed around a backflow prevention assembly unless the bypass is equipped with the same degree of backflow prevention protection and is tested annually.
- E. Backflow prevention assemblies installed on the service line to a customer's water system shall be located so as to be readily accessible for maintenance and testing and protected from freezing. No reduced pressure principle backflow prevention assembly shall be located where it will be submerged or subject to flooding by any fluid.
- F. No plug or additional piping shall be affixed to the pressure differential relief port valve (except for specifically-designed funnel apparatus available from the manufacturer). The pressure differential relief port must be a minimum of twelve (12) inches above the floor level.

Section IX. Testing of Backflow Prevention Assemblies

- A. It shall be the duty of the consumer at any premises on which backflow prevention assemblies required by this ordinance are installed to have inspections, tests, and overhauls made in accordance with the following schedule or more often where test results indicate a need. The Village may establish the annual test date based on the nature of the customer's water use requirements.
 - 1. Air gap separations shall be inspected at the time of installation and at least every twelve months thereafter.
 - 2. Double check valve assemblies shall be inspected and tested for proper operation at the time of installation and at least every twelve months thereafter.
 - 3. Reduced pressure principle backflow prevention assemblies shall be inspected and tested for proper operation at the time of installation and at least every twelve months thereafter.
- B. Inspections, tests, and overhauls of backflow prevention assemblies shall be made at the expense of the water consumer and shall be performed by a State of Missouri certified backflow prevention assembly tester.
- C. Whenever backflow prevention assemblies required by this ordinance are found to be defective, they shall be repaired or replaced at the expense of the consumer without delay.
- D. Modification to an assembly using spare parts other than those of the original manufacturer invalidates the approval of the device.
- E. The water consumer must maintain a complete record of each backflow prevention assembly from purchase to retirement. This shall include a comprehensive listing that includes a record of all tests, inspections, and repairs. Records of inspection, tests, repairs, and overhauls shall be made available to the water purveyor upon request.
- F. Backflow prevention assemblies shall not be bypassed, made inoperative, removed, or otherwise made ineffective.

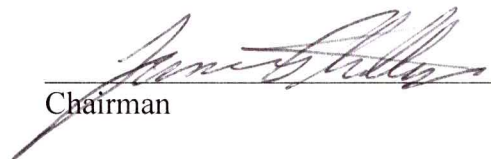
Section X. Violations

- A. The Village shall deny or discontinue, after reasonable notice to the occupants thereof, the water service to any premises wherein any backflow prevention assembly required by this ordinance is not installed, tested, and maintained in a manner acceptable to the Village, or if it is found that the backflow prevention assembly has been removed or bypassed, or if an unprotected cross connection exists on the premises.
- B. Water service to such premises shall not be restored until the consumer has corrected or eliminated such conditions or defects in conformance with this ordinance to the satisfaction of the Village.

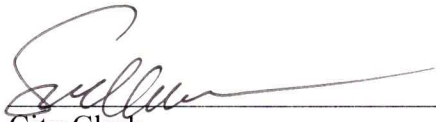
Section XI. This Ordinance shall be in full force and effect from and after the date of its passage and approval.

Publicly read and passed by a majority vote of the Board of Trustees this 17 day of

July, 2012.


Chairman

ATTEST:


City Clerk

APPENDIX A

DEFINITIONS

1. "Air gap separation" means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the overflow level rim of the receptacle, and shall be at least double the diameter of the supply pipe measured vertically above the flood level rim of the vessel, but in no case less than one inch.
2. "Auxiliary water supply" means any water source or system, other than the public water supply, that may be available in the building or premises.
3. "Backflow" means the flow other than the intended direction of flow, of any foreign liquids, gases, or substances into the distribution system of a public water supply.
4. "Backflow prevention assembly" means any double check valve or reduced pressure principle backflow preventer having resilient-seated shut-off valves on both the upstream and downstream end and the necessary test cocks as integral parts of the assembly.
5. "Consumer" means the owner or person in control of any premises supplied by or in any manner connected to a public water system.
6. "Containment" means protection of the public water supply by installing a backflow prevention assembly or air gap separation on the main service line to a facility.
7. "Contamination" means an impairment of the quality of the water by sewage, process fluids, or other wastes to a degree which could create an actual hazard to the public health through poisoning or through spread of disease by exposure.
8. "Cross connection" means any physical link between a potable water supply and any other substance, fluid, or source, which makes possible contamination of the potable water supply due to the reversal of flow of the water in the piping or distribution system.
9. "Hazard, Degree of" means an evaluation of the potential risk to public health and the adverse effect of the hazard upon the potable water system.
 - a. Hazard, Health - any condition, device, or practice in the water supply system and its operation which could create or may create a danger to the health and well-being of the water consumer.
 - b. Hazard, Plumbing - a plumbing type cross connection in a consumer's potable water system that has not been properly protected by a vacuum breaker, air gap separation or backflow prevention assembly.
 - c. Hazard, Pollutational - an actual or potential threat to the physical properties of the water system or to the potability of the public or consumer's potable water system but which would constitute a nuisance or be aesthetically objectionable or could cause damage to the system or its appurtenances, but would not be dangerous to health.
 - d. Hazard, System - an actual or potential threat of severe damage to the physical

properties of the public potable water system or the consumer's potable water system, or of a pollution or contamination which would have a protracted effect on the quality of the potable water in the system.

10. "Isolation" means protection of a facility's internal plumbing system by installing a backflow prevention assembly, air gap separation, or other backflow prevention device on an individual fixture, appurtenance, or system.
11. "Pollution" means the presence of any foreign substance (organic, inorganic, or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic use.
12. "Public potable water system" means any publicly or privately owned water system supplying water to the general public which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the Missouri Department of Natural Resources.
13. "Service connection" means the terminal end of a service line from the public water system. If a meter is installed at the end of the service, then the service connection means the downstream end of the meter.
14. "Water purveyor" means the owner, operator, or individual in responsible charge of a public water system.

APPENDIX B

TYPES OF FACILITIES REPRESENTING HIGH HAZARD CROSS CONNECTIONS

1. Aircraft and missile manufacturing plants;
2. Automotive plants including those plants which manufacture motorcycles, automobiles, trucks, recreational vehicles and construction and agricultural equipment;
3. Potable water dispensing stations which are served by a public water system;
4. Beverage bottling plants including dairies and breweries;
5. Canneries, packing houses and reduction plants;
6. Car washes;
7. Chemical, biological and radiological laboratories including those in high schools, trade schools, colleges, universities and research institutions;
8. Hospital, clinics, medical buildings, autopsy facilities, morgues, mortuaries, dental clinics, veterinary facilities and other medical facilities;
9. Metal or plastic manufacturing, fabrication, cleaning, plating or processing facilities;
10. Plants manufacturing paper and paper products;
11. Plants manufacturing, refining, compounding or processing fertilizer, film, herbicides, natural or synthetic rubber, pesticides, petroleum or petroleum products, pharmaceuticals, radiological materials or any chemical which would be a contaminant to the public water system;
12. Commercial facilities that use herbicides, pesticides, fertilizers or any chemical which would be a contaminant to the public water system;
13. Plants processing, blending or refining animal, vegetable or mineral oils;
14. Commercial laundries and dye works;
15. Sewage, storm water and industrial waste treatment plants and pumping stations;
16. Waterfront facilities including piers, docks, marinas and shipyards;
17. Industrial facilities which recycle water;
18. Restricted or classified facilities or other facilities closed to the supplier of water or the department;
19. Fire sprinkler systems using any chemical additives;
20. Auxiliary water systems;

21. Irrigation systems with facilities for injection of pesticides, herbicides or other chemicals or with provisions for creating back pressure;
22. Portable tanks for transporting water taken from a public water system; and
23. Facilities which have pumped or repressurized cooling or heating systems that are served by a public water system, including all boiler systems.

APPENDIX C

TYPES OF FACILITIES REPRESENTING LOW HAZARD CROSS CONNECTIONS

1. Tanks to store water from the public water system for fire fighting only, unless the tanks meet the requirements of the department for construction to maintain bacteriological quality of the water;
2. Fire sprinkler systems not using chemical additives. This only applies to new fire sprinkler systems or fire sprinkler systems scheduled for modifications;
3. Irrigation systems without facilities for injection of pesticides or other chemicals. The backflow prevention assembly may be installed between the customer service line and the irrigation system; and
4. Cross-connections what could permit introduction of contaminants into the public or customer water system and create a nuisance, be aesthetically objectionable, or cause minor damage to the water distribution system or its appurtenances.