

**CLARK COUNTY COMBINED HEALTH DISTRICT**  
**SECTION I**  
**Cross Connection Control and Water Quality Protection**  
(08/17/98)

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**REFERENCES**

- Cross connections - see OAC 3745-95-02  
Backflow prevention devices - see OAC 3745-95-06  
Backflow - see OAC 4101:2-51-38
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**01 BACKFLOW PROTECTION**

In the judgment of the Combined Health District, the integrity of the public water system is, or can be, endangered by backflow from an actual or a potential cross connection within the plumbing system of a water consumer, the Health District may order the installation of an approved backflow prevention method or device consisting of either an air-gap, vacuum breaker, reduced pressure principle backflow preventer or any combination thereof at the water service connection to the premise. The water consumer shall install the designated device or method at his/her own expense, and failure, refusal or inability to install such device or method immediately shall constitute a ground for discontinuing water service to the premise until such device or method has been installed and approved by the Health District. The use of the approved backflow preventer at the water service connection does not in any way affect or eliminate the need for individual fixture devices or air-gaps as required by the laws of the State of Ohio.

**02 DEFINITIONS**

As used in this chapter, certain terms are defined as follows:

- (a) "Air gap separation" means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet water supply to a tank, plumbing fixture or other device and the flood level rim of the receptacle.
- (b) "Approved" means that a backflow prevention device or method has been accepted by the Health District and the Ohio Environmental Protection Agency as suitable for the proposed use.
- (c) "Auxiliary water system" means any water system on or available to the premises other than the City's public water system and includes the water supplied by the system. These auxiliary water systems may include, but are not limited to, water from another purveyor's public water system; or water from a source such as wells, cisterns, tanks, lakes or streams; or process fluids; or used water.

- (d) “Backflow” means the flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable water supply from any source other than the intended source of the potable water supply.
- (e) “Backflow prevention device” means any device, method or type of construction intended to prevent backflow into a potable water system.
- (f) “Board of Health” means the board of health of a city or general health district or the authority having the duties of a board of health in any city as authorized by Section 3709.05 of the Revised Code.
- (g) “City” means the City of Springfield, Ohio.
- (h) “Consumer” means the owner or person in control of any premises supplied by or in any manner connected to a public water system.
- (i) “Consumer’s water system” means any water system, located on the premises occupied by the consumer, supplied by or in any manner connected to a public water system.
- (j) “Contamination” means an impairment of the quality of the water by sewage or process fluids or waste to a degree which would create an actual hazard to the public health through poisoning or through spread of disease by exposure.
- (k) “Cross Connection” means any arrangement whereby backflow can occur.
- (l) “Double check valve assembly” means an assembly composed of two single, independently acting, check valves including tightly closing shut-off valves located at each end of the assembly and suitable connections for testing the water tightness of each check valve.
- (m) “Food or beverage plant” means a place where food or beverages are processed, prepared, packaged for distribution and/or resale.
- (n) “Health care facilities” means, but is not limited to, hospitals, physician’s offices, nursing homes, urgent care centers, extended care facilities, and long term care facilities.
- (o) “Health District” means a city or general health district as created by or under authority of Chapter 3709 of the Revised Code.
- (p) “Health hazard” means any condition, device or practice in a water system or it’s operation that creates, or may create, a danger to the health and well being of users. The word “severe” as used to qualify “health hazard” means a hazard to the health of the water systems user or the public that could reasonably be expected to result in potentially lethal or permanently debilitating morbidity or in death.
- (q) “Interchangeable connection” means an arrangement or device that will allow alternate but not simultaneous use of two sources of water.
- (r) “Nonpotable water” means water not safe for drinking, personal, hygienic or culinary use.
- (s) “Person” means the state, any political subdivision, public or private corporation, individual, partnership, association, trust or other legal entity.
- (t) “Pollution” means the presence in water of any foreign substance that tends to degrade its quality so as to constitute a health hazard or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health but which does adversely affect such waters for domestic use.

- (u) “Potable water” means water which is satisfactory for drinking, culinary and personal hygienic purposes and meets the requirements of the Department of Health.
- (v) “Process fluids” means any fluid or solution which may be chemically, biologically or otherwise contaminated or polluted in a form or concentration such as would constitute a health, pollutional or system hazard. If introduced into the public or a potable consumer’s water system. This includes, but is not limited to:
  - (1) Polluted or contaminated waters;
  - (2) Process waters;
  - (3) Used waters originating from the public water system which may have deteriorated in sanitary quality;
  - (4) Cooling Waters;
  - (5) Contaminated natural waters taken from wells, lakes, tanks, cisterns, streams or irrigation systems;
  - (6) Chemicals in solution or suspensions;
  - (7) Oils, gases, acids, alkalis and other liquid and gaseous fluids used in industrial or other process, or for fire fighting purposes.
- (w) “Public water system” means any publicly or privately owned potable water system subject to Ohio R.C. 6111.13.
- (x) “Reduced pressure principle backflow prevention device” means a device containing a minimum of two independently acting check valves together with an automatically operated pressure differential relief valve located between the two check valves. During normal flow and at the cessation of normal flow, the pressure between these two checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the check valves at less than the supply pressure. The unit must include tightly closing shut-off valves located at each end of the device, and each device shall be fitted with properly located test cocks.
- (y) “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.
- (z) “System hazard” means a condition posing an actual or potential threat of damage to the physical properties of the public water system or a potable consumer’s water system.
- (aa) “Pollutional hazard” means a condition through which an aesthetically objectionable or degrading material not dangerous to health may enter the public water system or a potable consumer’s water system.
- (bb) “Used water” means any water supplied by a water purveyor from a public water system to a consumer’s water system after it has passed through the service connection and is no longer under the control of the water purveyor.
- (cc) “Water purveyor” means the owner or operator of a public water system.
- (dd) “Water system” means the pumps, plumbing and connected appurtenances and connected water storage devices used to transport and store water.
- (ee) “Ohio E.P.A.” means the Ohio State Environmental Protection Agency.

### **03 CROSS CONNECTIONS PROHIBITED**

- (a) No person shall install or maintain a water service connection to any premise where actual or potential cross connections to a public water system or a potable consumer's water system may exist unless such actual or potential cross connections are abated or controlled to the satisfaction of the Health District.
- (b) No person shall install or maintain any connection whereby water from an auxiliary water system may enter a public water system or potable consumer's water system unless the auxiliary water system and the method of connection and use of such system shall have been approved by the Health District and/or by the Ohio E.P.A. as required by Ohio R.C. 6111.15.
- (c) Except as otherwise provided in this chapter, no person shall install or maintain a water system wherein any air gap separation distance is less than twice the diameter of the water supply pipe or faucet or is less than one inch, whichever is the greater distance.

### **04 SURVEYS AND INVESTIGATIONS**

- (a) The Health Commissioner, or his authorized representative, shall have the right to enter premises served by any public water system at all reasonable times for the purpose of making surveys and investigations of water use practices within the premises.
- (b) On request by the Health Commissioner, or his authorized representative, the consumer shall furnish the water purveyor, or its authorized representative, information on water use practices within the consumer's premises.
- (c) Subsection (a) hereof does not relieve the consumer of the responsibility for conducting, or causing to be conducted, periodic surveys of water use practices on his premises to determine whether there are actual or potential cross connections in the consumer's water system through which contaminants or pollutants could backflow into a public water system or a potable consumer's water system.

### **05 WHERE PROTECTION IS REQUIRED**

- (a) An approved backflow prevention device shall be installed on each service line to a consumer's water system serving the consumer's premises by a licensed plumber of the Clark County Combined Health District, where in the judgment of the Health Commissioner or the Ohio E.P.A., a real or potential health, pollutional, or system hazard to the public water system exists.
- (b) An approved backflow prevention device shall be installed on each service line to a consumer's water system serving the consumer's premises where the following conditions exist:
  - (1) The premises has an auxiliary water system, unless such auxiliary system is accepted as an additional source by the Health Commissioner and the additional source is approved by the Ohio E.P.A.
  - (2) Any substance is handled on the premises in such a fashion as to create an actual or potential hazard to a public water system.
  - (3) The premises has internal cross connections that, in the judgment of the Health District, are not correctable or intricate plumbing arrangements which make it impracticable to determine whether or not cross connections exist.
  - (4) Premises where, because of security requirements or other prohibitions or

restrictions, it is impossible or impractical to make a complete cross connection survey.

- (5) The premise has a repeated history of cross connections being established or re-established.
- (6) Other conditions in which an approved backflow prevention device is required by Federal or Ohio Law.

(c) An approved backflow prevention device shall be installed at each point of connection between a public water system and an auxiliary water system and at each point of connection between a potable consumer's water system and an auxiliary water system, unless such auxiliary system is accepted as an additional source by the Health District and the additional source is approved by the Ohio E.P.A.

## **06 TYPE OF PROTECTION REQUIRED**

(a) The type of protection required under Section 05 (b), shall depend on the degree of hazard, which exists as follows:

- (1) A required air gap separation and an approved reduced pressure principal back flow prevention device shall be maintained where a public water system may be contaminated with substances that could cause a severe health hazard;
- (2) A required air gap separation shall be maintained or an approved reduced pressure principle backflow prevention device shall be installed where a public water system may be contaminated with any substance that could cause a system or health hazard or a polluttional hazard.

(b) The type of protection required under Section 05 (c) shall be a required air gap separation or an approved interchangeable connection.

(c) Where an auxiliary water system is used as a secondary source of water for a fire protection system, the provisions of subsection (b) hereof for a required air gap separation or an approved interchangeable connection may be waived by the Health Commissioner and the Ohio E.P.A. provided:

- (1) At premises where the auxiliary water system may be contaminated with substances that could cause a system or health hazard, a public water system or a potable consumer's water system shall be protected against backflow by installation of an approved reduced pressure principle backflow prevention device;
- (2) At all other premises, a public water system or a potable consumer's water system shall be protected against backflow by installation of an approved reduced pressure principal backflow prevention device;
- (3) A public water system or a potable consumer's water system shall be the primary source of water for the fire protection system;
- (4) The fire protection system shall be normally filled with water from a public water system or a potable consumer's water system;
- (5) The water in the fire protection system shall be used for fire protection only, with no other use of water from the fire protection system downstream from the approved backflow prevention device.

(d) Type of Backflow Protection Required; Commercial Water Services. An approved backflow prevention device of the type designated shall be installed on each domestic water service connection to the following types of facilities unless

the Health Commissioner determines that no real or potential health, pollutional or system hazard to the public water system exists.

Abbreviations used in this chapter are as follows:

A.G. - Air Gap Separation per Section 03 (c)

R.P. - Reduced Pressure Principle Backflow Preventer.

<u>Type of Facility</u>	<u>Minimum Type of Protection</u>
Breweries, distilleries, bottling plants	R.P.
Car wash with recycling system and/or wax educator	R.P.
Chemical plants	R.P.
Dairies	R.P.

<u>Type of Facility</u>	<u>Minimum Type of Protection</u>
Health care facilities	R.P.
Fertilizer plants	R.P.
Film laboratory or processing plant	R.P.
Food or beverage plant	R.P.
Laboratories	R.P.
Laundries and dry cleaning plants	R.P.
Machine tool plants (health or system hazard)	R.P.
Machine tool plants (pollutional hazard)	R.P.
Metal processing plant (health or system hazard)	R.P.
Metal processing plant (pollutional hazard)	R.P.
Metal plating plant	R.P.
Morgues or mortuaries	R.P.
Nursing Home	
Long term care	
Extended care	
Packing houses or rendering plants	R.P.
Paper products plant	R.P.
Petroleum processing plant	R.P.
Petroleum storage yard (health or system hazard)	R.P.
Petroleum storage yard (pollutional hazard)	R.P.
Pharmaceutical or cosmetic plant	R.P.
Power plants	R.P.
Radioactive material plants	R.P.
Restaurants, with soap educators and/or industrial type disposal	R.P.
Sand and gravel plants	R.P.
Schools with laboratories having acid wastes	R.P.
Sprinkling or irrigation systems	R.P.
Swimming pools with piped fill line	R.P.
Sewage treatment plants	R.P.
Sewage pumping stations	R.P.

Veterinary establishments R.P.

In addition to and including those types of facilities listed above, an approved backflow prevention device of the type designated shall be installed on each commercial water service connection to any premises containing the following real or potential hazards.

Premises having an auxiliary water system not connected to public water system	R.P.
Premises having a water storage tank, reservoir, pond, or similar appurtenance	R.P.
Premises having a steam boiler, cooling system, or hot water heating system where chemical water conditioners are used	R.P.
Premises having submerged inlets to equipment	R.P.

<u>Type of Facility</u>	<u>Minimum Type of Protection</u>
Premises having self-draining yard hydrants, fountains, hose boxes or similar devices presenting a health or system hazard (i.e., chemical storage plants, tank farms, bulk storage yards)	R.P.
Premises having self-draining yard hydrants, fountains, hose boxes or similar devices presenting a pollutional hazard (i.e., parks play field, cemeteries)	R.P.

(e) Type of Backflow Protection Required; Fire Protection Service. An approved double check valve assembly device or the use of a reduced pressure principal backflow prevention device shall be installed on each fire protection service to any premises unless the Health Commissioner determines that no real or potential health, pollutional or system hazard to the public water system exists. The double check assembly device must meet all of the following requirements before it can be approved by the City Water and Fire Divisions.

- (1) Water from the downstream side of the double check valve assembly device shall be used for fire protection only.
- (2) There shall be no regular use of water downstream from the double check valve assembly device other than for fire system make-up water.
- (3) The fire system shall be filled with water from the public water supply only.
- (4) The public water supply must be the primary source of water for fighting fires.
- (5) The water system must contain no additives. Provided, however, where the fire protection system contains any of the following components a reduced pressure principle backflow prevention device shall be installed between such component and the rest of the water system so as to isolate such component from the rest of the water system:
  - Auxiliary Water System
  - Anti-Freeze Legs
  - Covered Gravity or Pressure Storage Tanks
  - Uncovered Storage Tanks or Reservoirs

(f) The Clark County Combined Health District Fire Divisions shall maintain a current record of all double check valve assembly devices which are a part of the fire sprinkler system.

#### **07 BACKFLOW PREVENTION DEVICES.**

(a) Any backflow prevention device installed in the County shall be of a model or construction approved by the Health District and the Ohio E.P.A. and shall be tested and be found to function properly and shall be certified by an inspector certified pursuant to Ohio R.C. 3703.04 and 3703.05 and Ohio Administrative Code Chapter 3701-37 before the device is put in use.

(b) Any backflow prevention device required shall be installed at a location and in a manner approved by the Health District and shall be installed by and at the expense of the water consumer.

(c) It shall be the duty of the consumer, on any premises on which backflow prevention devices have been installed to have thorough inspections and operational tests made of the devices at such intervals and in such manner as may be required by the Health District or the Ohio E.P.A., but in no event shall such tests be made at greater than twelve month intervals. These inspections and tests shall be at the expense of the water consumer and shall be performed by an inspector certified pursuant to Ohio R. C. 3703.04 and 3703.05 and Ohio Administrative code Chapter 3701-37.

(d) Backflow prevention devices shall be repaired, overhauled or replaced at the expense of the consumer within fourteen days after they are found to be defective. Records of such inspections, tests, repairs and overhauls shall be kept by the consumer and made available to the Health Commissioner. Inspections, tests, repairs and overhauls must be performed by a licensed plumber registered with the Clark County Combined Health District who also carries a state certificate for testing backflow devices.

(e) Backflow prevention devices shall be tested during normal business hours. Manifold or dual settings of the devices should be considered for premises requiring uninterrupted water service. Backflow prevention devices set in manifold shall meet the minimum flow requirements of a single device of the proper size.

(f) Existing backflow prevention devices approved by the Health District or the Ohio E.P.A. prior to the effective date of this regulation and which are properly maintained shall, except for inspection, testing, and maintenance requirements, be excluded from the requirements of subsections (a) and (b) hereof, if the Health District and the Ohio E.P.A. are assured that the devices will satisfactorily protect the public water system.

(g) The Clark County Combined Health District shall maintain a current record of all backflow prevention devices which are a part of any water system connected to a public water system.

(h) Authorized persons performing inspections as required in this section shall, within fifteen days of performing such inspection, file with the Clark County Combined Health District a test report. The test report shall include the following data:

- (1) Type of backflow prevention device.
- (2) Size of backflow prevention device.
- (3) Location of backflow prevention device.
- (4) Model designation of backflow prevention device.
- (5) Date backflow prevention device was installed.
- (6) Test results before backflow prevention device was repaired.



- (7) Description of repairs made.
- (8) Description of materials used in making repairs.
- (9) Results of a final test of the backflow prevention device after the repair or installation.
- (10) Inspector's signature.
- (11) Date of the inspection.
- (12) Certification by the owner of the premises on which the backflow prevention device is located certifying that the backflow prevention device has been in constant use at the location of the backflow prevention device during the entire proscribed interval between test periods and that during that period the backflow prevention device was not by-passed, made inoperative or removed without proper authorization.
- (13) Such other information as the Health District deems necessary.  
The person filing such report with the Clark County Combined Health District shall pay a filing fee in the amount of ten dollars (\$10.00) to the Clark County Combined Health District for each report filed.

#### **08 BOOSTER PUMPS.**

(a) No person shall install or maintain a water service connection to any premises where a booster pump has been installed on the service line to or within such premises, unless such booster pump is equipped with a low pressure cut-off designed to shut-off the booster pump when the pressure in the service line on the suction side of the pump drops to ten pounds per square inch gauge or less.

(b) It shall be the duty of the water consumer to maintain the low-pressure cut-off device in proper working order and to certify to the Health District, at least once a year, that the device is operable.

(c) The low pressure cut-off control for booster pumps shall conform to the Ohio E.P.A. Specifications as described in the Ohio E.P.A. publication "Backflow Prevention and Cross-connection Control", third edition 1987.

#### **09 CROSS-CONNECTION AND BACKFLOW FOR PRIVATE WATER SYSTEMS ONLY**

See Ohio Administrative Code 3701-28-01, (OOO); 3701-28-08; and 3701-28-20, (A).  
Appendix A

#### **99 PENALTY**

Whoever violates any provision of this regulation for which another penalty is not specifically provided shall be guilty of violating Section 3709.99 of the Ohio Revised Code and is punishable under that section.

## **APPENDIX A**