

CHAPTER 917
Backflow Prevention and Cross-connection Control

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CROSS REFERENCES

Prohibition against connection with private, auxiliary or emergency water supply - see Ohio R.C. 6109.13

Backflow prevention and cross-connection control - see OAC Ch. 3745-95

917.01 CROSS-CONNECTION CONTROL - GENERAL POLICY.

(a) Purpose. The purpose of these Rules and Regulations is:

- (1) To protect the public potable water supply from contamination or pollution by isolating within the consumer's water system contaminants or pollutants which could backflow through the service connection into the public potable water system.
- (2) To promote the elimination or control of existing cross-connections, actual or potential, between the public or consumer's potable water system and non-potable water systems, plumbing fixtures and sources or systems containing process fluids.
- (3) To provide for the maintenance of a continuing program of cross-connection control which will systematically and effectively prevent the contamination or pollution of the public and consumer's potable water systems.

(b) Application. The Rules and Regulations shall apply to all premises served by the public potable water system of the City of Huron, Ohio.

(c) Policy. The City of Huron shall be responsible for the protection of the public potable water system from contamination due to backflow of contaminants through the water service connection. If, in the judgment of the Water Superintendent, an approved backflow prevention device is necessary at the water service connection to any consumer's premises for the safety of the water system, the Superintendent of Water or his authorized representative shall give notice to the consumer to install such approved backflow prevention device at each service connection to his premises. The consumer shall immediately install such approved device or devices at his own expense, and failure, refusal, or inability on the part of the consumer to install such devices immediately shall constitute grounds for discontinuing water service to the premises until such device or devices have been installed.

(Ord. 1997-38. Passed 10-27-97.)

917.02 DEFINITIONS.

(a) The following definitions shall apply in the interpretation and enforcement of these rules and regulations:

- (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 flood level rim of the receptacle.
- (2) "Approved" means that a backflow prevention device or method has been accepted by the supplier of water and the Director as suitable for the proposed use.
- (3) "Auxiliary water system" means any water system on or available to the premises other than the public water system and includes the water supplied by the system. These auxiliary waters may include water from another supplier's public water system; or water from a source such as wells, lakes, or streams; or process fluids; or used water. They may be polluted or contaminated or objectionable or constitute a water source or system over which the supplier of water does not have control.
- (4) "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.
- (5) "Backflow prevention device" means any device, method, or type of construction intended to prevent backflow into a potable water system.
- (6) "Consumer" means the owner or person in control of any premises supplied by or in any manner connected to a public water system.
- (7) "Consumer's water system" means any water system, located on the consumer's premises, supplied by or in any manner connected to a public water system. A household plumbing system is considered to be a consumer's water system.
- (8) "Contamination" means an impairment of the quality of the water by sewage or process fluid or waste to a degree which could create an actual hazard to the public health through poisoning or through spread of disease by exposure.
- (9) "Cross-connection" means any arrangement whereby backflow can occur.
- (10) "Degree of hazard" is a term derived from an evaluation of the potential risk to health and the adverse effect upon the potable water system.

- (11) "Director" means the Director of the Ohio Environmental Protection Agency or his authorized representative.
- (12) "Double check valve assembly" means an assembly composed of two single, independently acting, check valves including tightly closing shutoff valves located at each end of the assembly and suitable connections for testing the water tightness of each check valve.
- (13) "Health hazard" means any condition, device, or practice in a water system or its 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 user that could reasonably be expected to result in significant morbidity or death.
- (14) "Interchangeable connection" means an arrangement or device that will allow alternate but not simultaneous use of two sources of water.
- (15) "Non-potable water" means water not safe for drinking, personal, or culinary use.
- (16) "Person" means the state, any political subdivision, public or private corporation, individual, partnership, or other legal entity.
- (17) "Pollution" means the presence in water of any foreign substance that tends to degrade its quality so as to constitute a 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 and unreasonably affect such waters for domestic use.
- (18) "Potable water" means water which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the Ohio Environmental Protection Agency.
- (19) "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:
 - A. Polluted or contaminated waters;
 - B. Process waters;
 - C. Used waters originating from the public water system which may have deteriorated in sanitary quality;
 - D. Cooling water;
 - E. Contaminated natural waters taken from wells, lakes, streams, or irrigation systems;
 - F. Chemicals in solution or suspension;
 - G. Oils, gases, acids, alkalis, and other liquid and gaseous fluids used in industrial or other processes, or for fire fighting purposes.
- (20) "Public water system" has the meaning ascribed to such term in Section 6109.01 and 6109.02 of the Ohio Revised Code.

- (21) "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 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 shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks.
- (22) "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.
- (23) "Supplier of water" means the owner or operator of a public water system.
- (24) "Superintendent of Water" means the Superintendent of Water for the City of Huron's water system.
- (25) "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.
- (26) "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.
- (27) "Used water" means any water supplied by a supplier of water 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 supplier.
- (Ord. 1997-38. Passed 10-27-97.)

917.03 WATER SYSTEM.

- (a) The water system shall be considered as made up of two parts: the public potable water system and the consumer's water system.
- (b) The public potable water system shall consist of the source facilities and the distribution system, and shall include all those facilities of the potable water system under the control of the City of Huron up to the point where the consumer's water system begins.
- (c) The source shall include all components of the facilities utilized in the production, treatment, storage, and delivery of water to the public distribution system.
- (d) The public distribution system shall include the network of conduits used for delivery of water from the source of the consumer's water system.
- (e) The consumer's water system shall include those parts of the facilities beyond the service connection which are utilized in conveying water from the public distribution system to points of use.
- (Ord. 1997-38. Passed 10-27-97.)

917.04 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 water system may exist.

(b) No connection shall be installed or maintained whereby water from an auxiliary water system may enter a public potable water system.
(Ord. 1997-38. Passed 10-27-97.)

917.05 SURVEY AND INVESTIGATIONS.

(a) The consumer's premises shall be open at all reasonable times to the Superintendent of Water, or his 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 Superintendent of Water, or his 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 premises to determine whether there are actual or potential cross connections in his water system through which contaminants or pollutants could backflow into his or the public potable water system.
(Ord. 1997-38. Passed 10-27-97.)

917.06 WHERE PROTECTION IS REQUIRED.

(a) An approved backflow prevention device shall be installed on each service line to a consumer's water system serving premises, where in the judgment of the Superintendent of Water or the Director, actual or potential hazards to the public potable water system exist.

(b) An approved backflow prevention device shall be installed on each service line to a consumer's water system serving premises where the following conditions exist:

- (1) Premises having an auxiliary water system, unless such auxiliary system is accepted as an additional source by the Superintendent of Water and the source is approved by the Director of the Ohio Environmental Protection Agency;
- (2) Premises on which any substance is handled in such a fashion as to create an actual or potential hazard to the public potable water system. This shall include premises having sources or systems containing process fluids or waters originating from the public potable water system which are no longer under the sanitary control of the Superintendent of Water;
- (3) Premises having internal cross-connections that, in the judgment of the Superintendent of Water, are not correctable, or intricate plumbing arrangements which make it impractical 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) Premises having a repeated history of cross-connections being established or reestablished;
- (6) Others specified by the Superintendent of Water or the Director.

(c) An approved backflow prevention device shall be installed on each service line to a consumer's water system serving, but not necessarily limited to, the following types of facilities unless the Superintendent of Water or the Director determines that no actual or potential hazard to the public potable water system exists:

- (1) Hospitals, mortuaries, clinics, nursing homes;
- (2) Laboratories;
- (3) Piers, docks, waterfront facilities;
- (4) Sewage treatment plants, sewage pumping stations, or storm pumping stations;
- (5) Food or beverage processing plants;
- (6) Chemical plants;
- (7) Metal plating industries;
- (8) Petroleum processing or storage plants;
- (9) Radioactive material processing plants or nuclear reactors;
- (10) Car washes;
- (11) Others when determined by the Superintendent of Water or the Director to pose a contamination potential.

(d) An approved backflow prevention device shall be installed at any point of connection between the public potable or consumer's water system and an auxiliary water system, unless such auxiliary system is accepted as an additional source by the Superintendent of Water and the source is approved by the Director of the Ohio Environmental Protection Agency. (Ord. 1997-38. Passed 10-27-97.)

917.07 TYPE OF PROTECTION REQUIRED.

(a) The type of protection required under Sections 917.06 (a), 917.06 (b), and 917.06 (c) of these regulations shall depend on the degree of hazard which exists as follows:

- (1) 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;
- (2) An approved air gap separation or an approved reduced pressure principle backflow prevention device shall be installed where the public potable water system may be contaminated with any substance that could cause a system or health hazard;
- (3) An approved air gap separation or an approved reduced pressure principle backflow prevention device 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.

(b) The type of protection required under Section 917.06(d) of these regulations shall be an approved 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 Section 917.07(b) for an approved air gap separation or an approved interchangeable connection may not be required, provided:

- (1) At premises where the auxiliary water system may be contaminated with substances that could cause a system or health hazard, the public or consumer's potable water system shall be protected against backflow by installation of an approved reduced pressure principle backflow prevention device;
- (2) At all other premises, the public or consumer's potable water system shall be protected against backflow by installation of either an approved reduced pressure principle backflow prevention device or an approved double check valve assembly;
- (3) The public or consumer's potable 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 the public or consumer's potable water system;
- (5) The water in the fire protection system shall be used for fire protection only, with no regular use of water from the fire protection system downstream from the approved backflow prevention device;
- (6) The water in the fire protection system shall contain no additives.
(Ord. 1997-38. Passed 10-27-97.)

917.08 BACKFLOW PREVENTION DEVICES.

(a) Any backflow prevention device required by these rules and regulations shall be of a model or construction approved by the Superintendent of Water and the Director and shall comply with the following:

- (1) An 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 vessel, but in no case less than one inch.
- (2) A double check valve assembly or a reduced pressure principle backflow prevention device shall be approved by the Superintendent of Water, and shall appear on the current list of approved backflow prevention devices of the Ohio Environmental Protection Agency.
- (3) An interchangeable connection, to be approved, shall be either a swing type connector or a four-way valve of the lubricated plug type that operates through a mechanism which unseats the plug, turns it ninety degrees and reseats the plug. Four-way valves shall not be used as stop valves but must have separate stop valves on each pipe connected to the valve. The telltale port on the four-way valve shall have no piping connected and the threads or flange on this port shall be destroyed so that a connection cannot be made.

(b) Existing backflow prevention devices approved by the Superintendent of Water or the Director of the Ohio Environmental Protection Agency at the time of installation and properly maintained shall, except for inspection, testing, and maintenance requirements, be excluded from the requirement of subsection (a) hereof providing the Superintendent of Water is assured that they will satisfactorily protect the public potable water system. Whenever the existing device is moved from the present location or requires more than minimum maintenance or when the Superintendent of Water finds a hazard to health, the device shall be replaced by a backflow prevention device meeting the requirements of these regulations.
(Ord. 1997-38. Passed 10-27-97.)

917.09 INSTALLATION.

(a) Backflow prevention devices required by these rules and regulations shall be installed at a location and in a manner approved by and at the expense of the water consumer. In addition, any backflow prevention device required by Section 917.07 (b) and 917.07 (c) of these regulations shall be installed at a location and in a manner approved by the Director of the Ohio Environmental Protection Agency as required by Section 6109.13 of the Ohio Revised Code.

(b) Backflow prevention devices installed on the service line to a consumer's water system shall be located on the consumer's side of the water meter, as close to the meter as is reasonably practical, and prior to any other connection.

(c) Pits or vaults shall be of water-tight construction, be so located and constructed as to prevent flooding and shall be maintained free from standing water by means of either a sump and pump or a suitable drain. Such sump pump or drain shall not connect to a sanitary sewer nor permit flooding of the pit or vault by reverse flow from its point of discharge. An access ladder and adequate natural or artificial lighting shall be provided to permit maintenance, inspection, and testing of the backflow prevention device.

(d) Reduced pressure principle backflow prevention devices must be installed above ground level or floor level whichever is higher.

(e) The installation of any backflow preventer on a water service provides a closed system and some common problems may occur following the installation. Closed plumbing systems will not allow for thermal expansion of the water within the plumbing. When hot water heaters become activated, water will expand and can possibly increase the water pressure enough to activate the pressure relief valves on hot water heaters. If this problem does occur, the customer should be notified that for protection of the plumbing and the hot water heater, a special ball cock may have to be installed in their toilet tank or an expansion tank will have to be included into their plumbing system. Installation of either device will correct the thermal expansion problem. (Ord. 1997-38. Passed 10-27-97.)

917.10 INSPECTION AND MAINTENANCE.

(a) It shall be the duty of the consumer at any premises on which backflow prevention devices required by these regulations are installed to have inspections, test, and overhauls made in accordance with the following schedule, or more often where inspections indicate a need:

- (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 tightness at the time of installation and at least every twelve months thereafter.
- (3) Reduced pressure principle backflow prevention devices shall be inspected and tested for tightness at the time of installation and at least every twelve months thereafter.
- (4) Interchangeable connections shall be inspected at the time of installation and at least every twelve months thereafter.
- (5) Pressure vacuum breaker devices shall be inspected and tested for tightness at the time of installation and at least every twelve months thereafter.

(b) Inspections, tests, and overhauls of backflow prevention devices shall be made at the expense of the water consumer and shall be performed by personnel certified by the Ohio Department of Health and approved by the City of Huron as qualified to inspect, test, and overhaul backflow prevention devices.

(c) Whenever backflow prevention devices required by these regulations are found to be defective, they shall be repaired, overhauled or replaced at the expense of the consumer without delay.

(d) The water consumer must maintain a complete record of each backflow prevention device from purchase to retirement. This shall include a comprehensive listing that includes a record of all tests, inspections, repairs, and overalls. Records of inspections, tests, repairs, and overhauls shall be submitted to the City of Huron Water Superintendent within thirty days of completions. Annually the customer shall be notified by the Water Division that his backflow prevention device must be retested and given a list of certified testers. Once the device is tested, copies of the test should be forwarded to the Water Superintendent prior to July 1 of the current year.

(e) Backflow prevention devices shall not be bypassed, made inoperative, removed or otherwise made ineffective without specific authorization by the City of Huron and/or the Ohio Environmental Protection Agency.
(Ord. 1997-38. Passed 10-27-97.)

917.11 BOOSTER PUMPS.

(a) Where a booster pump has been installed on the service line to or within any premises, such pump shall be equipped with a low pressure cut-off device 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 Superintendent of Water, at least once a year, that the device is operating properly.
(Ord. 1997-38. Passed 10-27-97.)

917.12 SPRINKLER AND IRRIGATION SERVICES.

(a) All services designated as sprinkler or irrigation shall be required to have an approved backflow prevention device installed in the sprinkler/irrigation service line downstream from the water meter and as close to the meter as practicable. Backflow prevention devices shall be a reduced pressure principle device conforming to the requirements of the American Society of Sanitary Engineers (ASSE) specification ASSE 1013 or a pressure vacuum breaker device conforming to ASSE 1020. Responsibility for installation, maintenance, repair, and annual testing of the approved backflow prevention device shall rest with the water consumer. Installation and testing of backflow prevention devices shall be in compliance with all applicable sections of the Rules and Regulations.

(b) In order to meet pertinent requirements of the Ohio Plumbing Code to insure proper operation, the City of Huron shall require the irrigation system services to be installed by a reputable plumbing contractor or irrigation services installer.
(Ord. 1997-38. Passed 10-27-97.)

917.13 FIRE PROTECTION SYSTEMS.

(a) All fire protection systems shall be protected with a double check valve assembly installed immediately following the main line valve inside the building. All rules and regulations apply regarding the backflow device, installation, repair, maintenance and testing.

(b) Where one line is connected to the public potable water supply to provide fire protection and water supply to the building, two separate backflow devices shall be required. The fire protection line shall be installed as listed above. The domestic water service shall branch off prior to the double check valve assembly and shall additionally be protected by a separate device to be determined by the Superintendent of Water. This installation shall protect the public water supply from backflow and the domestic water service from the fire protection line. All rules pertaining to backflow devices regarding installation, repair, maintenance and testing shall apply. (Ord. 1997-38. Passed 10-27-97.)

917.14 RIGHT OF ENTRY FOR INSPECTION.

The Service Director or his or its duly authorized representative shall have the right to enter at any reasonable time any property served by a connection to the public water supply or distributing system of Huron for the purpose of inspecting the piping system or systems thereof. On demand the owner, lessees or occupants of any property so served shall furnish to the Service Director any information which he may request regarding the piping system or systems or water use on such property. The refusal of such information, when demanded, shall, within the discretion of the Service Director, be deemed evidence of the presence of improper connections as provided in this chapter. (Ord. 1997-38. Passed 10-27-97.)

917.15 VIOLATIONS - DISCONTINUANCE OF WATER.

(a) The Superintendent of Water for the City of Huron shall deny or discontinue, after reasonable notice to the occupants thereof, the water service to any premises wherein any backflow prevention device required by these Rules and Regulations is not installed, tested, and maintained in a manner acceptable to these Rules, or if it is found that the backflow prevention device has been removed or by-passed, or if an unprotected cross connection exists on the premises, or if a low pressure cut-off device required by these Rules is not installed and maintained in working order.

(b) Water service to such premises shall not be restored until the consumer has corrected or eliminated such condition or defects in conformance with these regulations and to the satisfaction of the Superintendent of Water for the City of Huron.

(c) The Superintendent of Water may recommend to the City Manager to commence a legal action against customers who knowingly violate the terms and conditions of these Rules and Regulations. In addition, the City of Huron may recover all reasonable expenses for litigation, damage-related expenditures, and fines levied on the City of Huron by other parties. (Ord. 1997-38. Passed 10-27-97.)