

CHAPTER 933
Backflow Prevention
LOCAL RULES AND REGULATIONS FOR BACKFLOW PREVENTION

933.01 BACKFLOW PREVENTION – 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 nonpotable water systems, plumbing fixtures and sources or systems containing process fluids.
3. To provide for the maintenance of 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

These Rules and Regulations shall apply to all premises served by the public potable water system of the City of Gahanna.

C. Policy

The Water Resources Engineer 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 judgement of the Water Resources Engineer, 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 Water Resources Engineer or his authorized representative shall give notice to the consumer to install such approved backflow prevention device at each service connection at 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 device or devices immediately shall constitute grounds for discontinuing water service to the premises until such device or devices have been installed.

933.02 DEFINITIONS.

- A. The Following definitions shall apply in the operation and enforcement of these rules and regulations.**
1. **Air Gap Separation-**
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 or the receptacle.

2. **Approved-**
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 Supply-**
Any water system on or available to the premises other than the public water system and includes the water supplied by the system. The auxiliary waters may include water from another 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-**
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-**
Any device, method, or type of construction intended to prevent backflow into a potable water system.
6. **Consumer-**
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-**
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-**
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-**
Any arrangement whereby backflow can occur.
10. **Degree of Hazard-**
The potential risk to health and the adverse effect upon the potable water system derived from an evaluation of that potential.
11. **Director-**
The director of the Environmental Protection Agency or his duly authorized representative.
12. **Double Check Valve Assembly-**
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-
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-
An arrangement or device that will allow alternate but not simultaneous use of two sources of water.
15. Non-potable Water-
Water not safe for drinking, personal, or culinary use.
16. Person-
The state, any political subdivision, public or private corporation, individual, partnership, or other legal entity.
17. Pollution-
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-
Water which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the Environmental Protection Agency.
19. Process Fluids-
Any fluid or solution which may be chemically, and 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 water;
 - 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-
That which is ascribed to such term in rule 3745-81-01 of the Administrative Code.

21. **Reduced Pressure Principle Backflow Prevention Device-**
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-**
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-**
The owner or operator of a public water system.
24. **System Hazard-**
A condition posing an actual or potential threat of damage to the physical properties of the public water system or potable consumer's water system.
25. **Pollutional Hazard-**
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.
26. **Used Water-**
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.

933.03 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 Water Resources Engineer 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 to 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.

933.04 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 or consumer's water systems may exist unless such actual or potential cross-connections are abated or controlled to the satisfaction of the Water Resources Engineer.
- B. No connection shall be installed or maintained whereby water from an auxiliary water system may enter a public potable or consumer's water system unless such auxiliary water system and the method of connection and use of such system shall have been approved by the Water Resources Engineer and by the Director of the Ohio Environmental Protection Agency as required by Section 6109.13 of the Ohio revised Code.

933.05 SURVEY AND INVESTIGATIONS.

- A. The consumer's premises shall be open at all reasonable times to the Water Resources Engineer, or his authorized representative, for the conduction of surveys and investigations of water uses 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 Water Resources Engineer, 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.

933.06 WHERE PROTECTION IS REQUIRED.

- A. An approved backflow prevention device shall be installed on each service line to a consumer's water system, where in the judgement of the Water Resources Engineer and the source is approved by the Director of the Ohio Environmental Protection Agency;
- 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 Water Resources Engineer and the source is approved by the Director of the Ohio Environmental Protection Agency;
 - 2. Premises on which any substance is handled in such 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 Water Resources Engineer;
 - 3. Premises having internal cross-connection that, in the judgement of the Water Resources Engineer, 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 re-established;
 6. Other specified by the Director of the Ohio Environmental Protection Agency.
- 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 Director of the Ohio Environmental Protection Agency determines that no actual or potential hazard to public potable water systems exists:
1. Hospitals, mortuaries, clinics, nursing homes;
 2. Laboratories;
 3. Piers, docks, waterfront facilities;
 4. Sewage treatment plants, sewage pumping stations or storm water 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 specified by the Water Resources Engineer or the Director of the Ohio Environmental Protection Agency.
- 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 Water Resources Engineer and the source is approved by the Director of the Ohio Environmental Protection Agency.

933.07 TYPE OF PROTECTION REQUIRED.

- A. The type of protection required under Section 6.A, 6.B and 6.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 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 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 water system may be polluted with substances that could cause a polluttional hazard not dangerous to health.
- B. The type of protection required under section 6.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 or water for a fire protection system, the provisions of Section 7.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 by 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 double check valve assembly;
 3. The public or consumer; as 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.

933.08 BACKFLOW PREVENTION DEVICES.

- A. Any backflow prevention device required by these rules and regulations shall be of a model or construction approved by the Water Resources Engineer and the Director of the Ohio Environmental Protection Agency 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 Water Resources Engineer, 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 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 Water Resources Engineer 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 Section 8.A of this regulation providing the Water Resources Engineer 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 Water Resources Engineer finds that the maintenance of the device constitutes a hazard to health, the device shall be replaced by a backflow prevention device meeting the requirements of these regulations.

933.09 INSTALLATION.

- A. Backflow prevention devices required by these rules and regulations shall be installed at a location and in manner approved by the Water Resources Engineer and at the expense of the water consumer. In addition, any backflow prevention device required by Section 7.B and 7.C of these regulations shall be installed at a location and in 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 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 pump or a suitable drain. Such sump pump or drain shall not connect to a sanitary sewer not 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.

933.10 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, tests, 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;

They should be dismantled, inspected internally, cleaned and repaired whenever needed and at least every thirty months.

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.

They should be dismantled, inspected internally, cleaned and repaired whenever needed and at least every five years.

4. Interchangeable connections shall be inspected 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 the Water Resources Engineer, or his authorized representative, 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 overhauls. Records of inspections, tests, repairs and overhaul shall be submitted to the Water Resources Engineer.
 - E. Backflow prevention devices shall not be bypassed, made inoperative, removed or otherwise made ineffective without specific authorization of the Water Resources Engineer.

933.11 VIOLATIONS.

- A. The Water Resources Engineer 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 regulations is not installed, tested and maintained in a manner acceptable to the Water Resources Engineer, 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.
- B. Water service to such premises shall not be restored until the consumer has corrected or eliminated such conditions or defects in conformance with these regulations and to the satisfaction of the Water Resources Engineer.