

Section

- 52.01 Purpose
- 52.02 Definitions
- 52.03 Responsibility
- 52.04 Customer responsibility
- 52.05 Right of entry
- 52.06 Cross-connections
- 52.07 Installation
- 52.08 Degree of hazards
- 52.09 Notices
- 52.10 Violations
- 52.11 Applicability
- 52.12 Severability

§ 52.01 PURPOSE.

To protect the public potable water supply of the City of Albemarle from the possibility of contamination or pollution, due to back siphonage or backpressure, by isolation within the consumer's private water system such contaminants or pollutants, which could backflow into the City of Albemarle public water conveyance system. Additionally, to define the authority of the City of Albemarle as the water purveyor entitled to eliminating all cross-connections, new or existing, within its public water system and to provide a comprehensive inspection program of cross-connections. Lastly to have inspection authority over those that will be installed in the future. (Ord. 07-25, passed 9-4-07)

§ 52.02 DEFINITIONS.

As used in this chapter, the following definitions shall apply:

(A) "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 of the receptacle. An "approved air-gap separation" shall be at least double the diameter of the supply pipe measured vertically above the top rim of the vessel. In no case shall the gap be less than four (4) inches.

(B) "APPROVED." As used herein in reference to a water supply system or backflow prevention device (or method) shall mean one that has been approved by the department.

(C) "BACKFLOW PREVENTION DEVICE, TYPE: A." Any effective device, method, or construction used to prevent backflow into a potable water system.

(D) "BACK-PRESSURE BACKFLOW." Backflow caused by a pump, elevated tank, boiler, or other means that could create pressure within the system greater than the supply pressure.

(E) "BACK-SIPHONAGE BACKFLOW." A reversal of the normal direction of flow in the pipeline due to a negative pressure (vacuum) being created in the supply line with the backflow source subject to atmospheric pressure.

(F) "APPROVED CHECK VALVE." A check valve that is drip tight in the normal direction of flow when the inlet pressure is one psi and the outlet pressure is zero. The check valve shall permit no leakage in a direction reversed to the normal flow. The closure element (e.g. clapper) shall be internally weighted or otherwise internally loaded to promote rapid and positive closure.

(G) "CONSUMER." Any person, firm, or corporation using or receiving water from the City of Albemarle water supply.

(H) "CONTAMINATION." An impairment of the quality of water by sewage or industrial fluids or waste to a degree which creates an actual hazard to public health through poisoning or through the spread of disease.

(I) "CROSS-CONNECTION." A "cross-connection" shall mean any actual or potential connection or structural arrangement between a public or a consumer's potable water system and any other source or system through which it is possible to introduce into any part of the potable system any used

water, industrial fluid, gas or substance other than the intended potable water with which the system is supplied. Bypass arrangements, jumper connections, removable sections, swivel or changeover devices and other temporary or permanent devices through which or because of which backflow can or may occur are considered to be cross-connections.

(J) "POINT OF CROSS-CONNECTION." The specific point or location in a public or a consumer's potable water system where a cross-connection exists.

(K) "DOUBLE-CHECK VALVE ASSEMBLY." An assembly composed of two (2) single, independently acting, approved 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.

(L) "DEGREE OF HAZARD." The evaluation of a health, system, plumbing, or pollution hazard.

(M) "HEALTH HAZARD." An actual or potential threat or contamination or pollution of physical or toxic nature to the public potable water system or the consumer's potable water system to such a degree or intensity that there would be a danger to health.

(N) "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 other device. Unprotected plumbing-type cross-connections are considered to be a health hazard. They include, but are not limited to, cross-connections to toilets, sinks, lavatories, wash trays, domestic washing machines and lawn sprinkling systems. Plumbing-type cross-connections can be located in many types of structures, including homes, apartment houses, hotels, and commercial and industrial establishments.

(O) "HAZARD, POLLUTION." An actual or potential threat to the physical properties of the water system or the potability of the public or consumer's potable water system but which would not constitute a health or system hazard, as defined. The maximum degree or intensity or pollution to which the potable water system could be degraded under this definition would cause a nuisance or be aesthetically objectionable or could cause minor damage to the system or its appurtenances.

(P) "HAZARD, SYSTEM." An actual or potential threat or severe danger to the physical properties of the public 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.

(Q) "INDUSTRIAL FLUIDS." 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 system, pollution, or plumbing hazard if introduced into an approved water supply.

(R) "CONSUMER'S INDUSTRIAL PIPING SYSTEM." System used by the consumer for transmission of or to confine or store any fluid, solid, or gaseous substance other than an approved water supply. Such a system would include all pipes, conduits, tanks, receptacles, fixtures, equipment, and appurtenances used to produce, convey, or store substances which are or may be polluted or contaminated.

(S) "POLLUTION." An impairment of the 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.

(T) "REDUCED-PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICE (RPZ)." A device containing within its structure

a minimum of two (2) independently acting, approved check valves, together with an automatically operating pressure differential relief valve located between the two (2) check valves. The first check valve reduces the supply pressure a predetermined amount so that during normal flow and at cessation of normal flow and pressure between the checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to atmosphere, shall operate to maintain the pressure between the checks less than the supply pressure. The unit shall include tightly closing shutoff valves located at each end of the device and each device shall be fitted with properly located test cocks.

(U) "SERVICE CONNECTION." The terminal end of a service connection from the public potable water system. There should be no unprotected takeoffs from the service line ahead of any meter or backflow prevention device located at the point of delivery to the consumer's water system.

(V) "POTABLE WATER." Water from any source which has been investigated by the health agency having jurisdiction, and which has been approved for human consumption.

(W) "AUXILIARY WATER SUPPLY." Any water supply on or available to the premises other than the City of Albemarle approved public potable water supply. These auxiliary waters may include water from another purveyor's public potable water supply or any natural source such as a well, spring, river, stream, etc., or used waters or industrial fluids. They may be polluted or contaminated or they may be objectionable and constitute an unacceptable water source over which the City of Albemarle does not have sanitary control.

(X) "CONSUMER'S WATER SYSTEM." Any water system located on the consumer's premises whether supplied by

a public potable water system or an auxiliary water supply. The system or systems may be either a potable water system or an industrial piping system.

(Y) "CONSUMER'S POTABLE WATER SYSTEM." That portion of the privately owned potable water system lying between the service connection and the point of use. This system will include all pipes, conduits, tanks, receptacles, fixtures, equipment, and appurtenances used to produce, convey, store or use potable water.

(Z) "PUBLIC POTABLE WATER SYSTEM." Any publicly or privately owned water system operated as a public utility under a valid health permit to supply water for domestic purposes. This system will include all sources, facilities, and appurtenances, between the source and the service connection such as valves, pumps, pipes, conduits, tanks, receptacles, fixtures, equipment, and appurtenances used to produce, convey, treat, or store potable water for public consumption or use.

(AA) "USED WATER." Any water supplied by a water purveyor from a public potable 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. The City of Albemarle Department of Public Utilities will be primarily responsible for preventing any contamination or pollution of the public water system. This responsibility begins at the point of origin of the public water supply and includes all of the public water distribution system, and ends at the service connection as defined under the Safe Drinking Water Act. The Backflow Administrator shall exercise vigilance to ensure that the consumer/customer has taken the proper steps to protect the public potable water system. (Ord. 07-25, passed 9-4-07)

§ 52.03 RESPONSIBILITY.

When it has been determined that a backflow protection assembly is required for the prevention on contamination of the public water system, the Backflow Administrator shall notify the owner, in writing, of any such building or premises, to correct within a time set by this chapter, any plumbing installed or existing that is in violation of this chapter. After surveying the private water system the Backflow Administrator will select an approved backflow prevention assembly required for containment control to be installed at service entrance. Prior to the installation of any backflow prevention assembly, the owner of the private water system must be notified that the installation of a backflow prevention assembly may create a closed system, and as a result thermal expansion may occur. Under such circumstance, the customer must understand and assume all liability and responsibilities for that phenomenon.

(Ord. 07-25, passed 9-4-07)

§ 52.04 CUSTOMER RESPONSIBILITY.

The customer has the responsibility of preventing contaminants and pollutants from entering the customer's private water system or the public water system operated by the City of Albemarle. The customer, at his own expense, shall install, operate, and maintain all backflow prevention assemblies specified within this ordinance. If a tenant customer does not maintain the private water system and has no authority to bring the system into compliance with the provisions of this chapter the City of Albemarle may assert any available action against the tenant to assure the private water system is brought into compliance with this chapter.

(Ord. 07-25, passed 9-4-07)

§ 52.05 RIGHT OF ENTRY.

Authorization.

(A) Any authorized representative from the City of Albemarle, upon presentation of proper credentials and identification, shall have the right to enter any building, structure or premises during normal business hours to perform any duty imposed upon him/her by this ordinance. Those duties may include sampling and testing of water, or inspection and observation of all piping systems connected to the public water supply. Refusal to allow these representatives to enter for these purposes will result in the disconnection of water service.

(B) Where the consumer has security measures in force which would require proper identification and clearance before entry into their premises, the consumer shall make necessary arrangements with security guards so that upon presentation of suitable identification, City of Albemarle personnel will be permitted to enter without delay for the purpose of performing their specific responsibilities. Refusal to allow entry for these purposes may result in discontinuance of water service.

(C) On request, the consumer shall furnish to the City of Albemarle any pertinent information regarding the water supply system on such property where cross-connection and backflow are deemed possible.

(Ord. 07-25, passed 9-4-07)

§ 52.06 CROSS-CONNECTIONS.

Unprotected cross-connection prohibited.

(A) No water service connection to any private water system shall be installed or maintained by the City of Albemarle. Service of water to any premises shall be discontinued by

the City of Albemarle if a backflow assembly, required by this chapter, is not installed, tested, and maintained or if a backflow assembly has been removed, bypassed, or if an unprotected cross-connection exists on the premises. Service will be restored after all such conditions or defects are corrected.

(B) No customer shall allow an unprotected cross-connection to be made or to remain involving the customer's private water system.

(C) No connection shall be made to an unapproved auxiliary water supply unless the public water supply is protected against backflow by an approved backflow assembly, appropriate to the degree of hazard.

(D) No customer shall fail to maintain in good operating condition any backflow prevention assembly, which is part of the customer's private water system and is required by this chapter.

(E) No customer shall fail to submit to the City of Albemarle any record, which is required by this chapter.

(Ord. 07-25, passed 9-4-07)

§ 52.07 INSTALLATION.

Installation and testing of backflow prevention assembly.

(A) The purpose of this section is to require that all water flowing from the public water system, must flow through an approved backflow prevention assembly and that each backflow prevention assembly be properly located, installed, maintained and tested so that the backflow prevention assembly is effective in protecting the public water system from any possible contamination or pollution.

(B) The installation or replacement of a backflow prevention assembly for domestic water use shall only be performed by a licensed plumber

or licensed utility contractor. The installation or repair of a backflow prevention assembly on a dedicated fire sprinkler service shall be performed by a licensed fire sprinkler contractor or utility contractor. All backflow prevention assemblies may be tested by a certified Backflow Technician authorized by the City of Albemarle. Repairs to a backflow prevention assembly on a dedicated fire sprinkler system may only be performed by a fire sprinkler contractor or licensed plumber.

(C) All new construction plans and specifications which will directly effect the City of Albemarle Public Utilities system, and/or required by the North Carolina Building Code, the North Carolina Department of Environment and Natural Resources (NCDENR), City of Albemarle Planning and Zoning and Technical Review Committee (TRC), shall be made available to the City of Albemarle Backflow Administrator for review, approval and to determine the degree of hazard.

(D) All existing facilities zoned commercial or industrial and have existing water services with the City of Albemarle Public Utilities and requesting a Certificate of Occupancy from the City of Albemarle's Fire Department or Planning and Zoning offices, shall be inspected for compliance of backflow and cross-connection control prevention. Any facility not having backflow protection or changing the degree of hazard shall be brought into compliance before the Backflow Administrator will recommend to the City of Albemarle Fire Marshal a release of the Certificate of Occupancy.

(E) All backflow prevention assemblies must be installed and maintained on the customer's premises as part of the customer's private water system at or near the service connection and before the service line

is connected to any other pipes except as authorized by the City of Albemarle Public Utilities.

(F) If it has been determined that a backflow prevention assembly cannot be installed at the meter service, an approved backflow assembly must be installed at another location as specified by the City of Albemarle Public Utilities.

(G) Any branch of plumbing installed on the private water system that may be of a greater hazard than the supply line, (example: chemical induced irrigation or fire systems, pump systems, etc.) shall be protected with a reduced pressure zone assembly (RPZ).

(H) All backflow prevention assemblies shall be installed in accordance with the Backflow and Cross-Connection approved practices and reviewed by the City of Albemarle Back Flow Administrator for compliance.

(I) All sprinkler systems utilizing double check valve assemblies, two (2) inch or larger, shall only be used with specific written permission from the Director of Public Utilities.

(J) Reduce pressure principle assemblies must be installed in a horizontal position either above ground or in a vault.

(K) Each backflow prevention assembly that is required must function properly at time of installment. Each customer will be required to test, maintain and repair each assembly required which is a part of the customer's private water system. A certified backflow prevention technician may only conduct such test. Testing shall be done immediately following installation of any backflow prevention assembly and on an annual basis. This will also apply to the RPZ portion of the backflow prevention device.

(L) If repair is found necessary on an assembly it must be re-tested following any repair. A complete duplicate copy of any testing and/or repair shall be sent to the City of Albemarle Public Utilities within thirty (30) days of completion of test or repair. Each customer must maintain a complete copy of test or repair. Each customer must maintain a complete copy of any test or repair for no less than five (5) years. All test and repair records must be maintained on forms approved by the Backflow Administrator of the City of Albemarle.

(M) All rubber components must be replaced every five (5) years or as often as needed.

(N) Any customer installing a reduced pressure zone (RPZ) or double check valve assembly (DCVA) must provide the following information to the Backflow Administrator within ten (10) days after installation with the following exception. Sprinkler systems shall be coordinated directly with the City of Albemarle Fire Marshal.

- (1) Service address where assembly is located.
- (2) Owner.
- (3) Description of assembly's location.
- (4) Date of installation.
- (5) Type of assembly.
- (6) Manufacturer.
- (7) Model number.
- (8) Serial number.
- (9) Test results/reports.

(O) The Backflow Administrator must approve each backflow assembly required by this chapter. A list of approved assemblies can be obtained through the City of Albemarle Backflow Administrator.

(P) The Backflow Administrator will provide the customer with a notification and list of approved backflow assemblies. The following time periods shall be set forth for the installation of the specified assemblies:

- (1) Health hazard 60 days.
- (2) Non-health hazard 90 days.

(Q) If an imminent hazard or unreasonable threat of contamination or pollution to the public water system is detected, the Backflow Administrator may require the installation of the required backflow assembly immediately or within a shorter time period than specified in division (P).

(R) If a customer does not wish for water service to be interrupted when a backflow assembly is tested, repaired, or replaced, a parallel installation must be made using an approved assembly of the same degree of hazard. The parallel line may be of the same size or smaller. (Ord. 07-25, passed 9-4-07)

§ 52.08 DEGREE OF HAZARDS.

(A) Determining degree of hazard. No service shall be completed until the Backflow Administrator has been provided information or has surveyed the private water system to determine the degree of hazard and make a determination of a backflow prevention assembly to be installed to protect the public water supply.

(1) Any customer making any modification to the private system's configuration or use of, which may change the degree of hazard, shall notify the Backflow Administrator before any modification is made. If the Backflow Administrator determines that such modification requires a different backflow prevention assembly, it must be installed before the modification is made.

(2) The following types of facilities or services have been identified by the City of Albemarle Public Utilities Department as having a potential for backflow or non-potable water into the public water supply system. Therefore, an approved backflow prevention assembly will be required on all such services according to the degree of hazard present. Other types of facilities or services not listed below may also be required to install approved backflow prevention assemblies if determined necessary by the City of Albemarle Backflow Administrator.

- DCVA = Double Check Valve Assembly
- RP = Reduced Pressure Principle Assembly
- DCDA = Double Check Detector Assembly
- RPDA = Reduced Pressure Detector Assembly
- AG = Air Gap
- PVB = Pressure Vacuum Breaker

(a) Aircraft and missile plants: RP

(b) Automotive service station, dealerships, etc:

- 1. No health hazard: DCVA
- 2. Health hazard: RP
- (c) Automotive plants: RP
- (d) Auxiliary water systems:

- 1. Approved public/private water supply: DCVA
- 2. Unapproved public/private water supply: AG
- 3. Used water and industrial fluids: RP

- (e) Bakeries:
 - 1. No health hazard: DCVA
 - 2. Health hazard: RP
- (f) Beauty shops/barber shops.
 - 1. No health hazard: DCVA
 - 2. Health hazard: RP
- (g) Beverage bottling plants: RP
- (g) Breweries: RP
- (h) Buildings - hotels, apartment houses, public and private buildings, or other structures having unprotected cross connections.
 - 1. (Under five stories) No health hazard: DCVA
 - 2. (Under five stories) Health hazard: RP
 - 3. (Over five stories) All: RP
- (i) Canneries, packing houses, and rendering plants: RP
- (j) Chemical plants - industrial, processing, compounding or treatment: RP
- (k) Chemically contaminated water system: RP
- (l) Commercial car-wash facilities: RP
- (m) Commercial greenhouses: RP
- (n) Individual commercial sales establishments (department stores)
 - 1. No health hazards: DCVA

- 2. Health hazard: RP
 - (o) Concrete/asphalt plants: RP
 - (p) Dairies and cold storage plants: RP
 - (q) Dye works: RP
 - (r) Film laboratories: RP
 - (s) Fire systems
 - 1. No health hazard: DCDA
 - 2. Health hazard: (booster pumps, foams, antifreeze solution, etc.): RPDA
 - (t) Hospitals, medical buildings, sanitarium, morgues, mortuaries, autopsy facilities, nursing and convalescent homes, medical clinics, and veterinary hospitals: RP
 - (u) Industrial facilities: RP
 - (v) Laundries: RP
 - (w) Lawn irrigation systems: RP
 - (x) Malls or strip malls (Frequent tenant change and photo labs, etc.)
 - 1. Health hazard: RP
 - (y) Metal manufacturing, cleaning processing, and fabricating plants: RP
 - (z) Mobile home parks:
 - 1. No health hazard: DCVA
 - 2. Health hazard: RP
 - (aa) Oil and gas production, storage or transmission properties: RP

(bb) Paper and paper products plants: RP

(cc) Pest control (exterminating and fumigating): RP

(dd) Plating plants: RP

(ee) Power plants: RP

(ff) Radioactive materials or substances - plants or facilities handling: RP

(gg) Restaurants: RP

(hh) Restricted, classified, or other closed facilities: RP

(ii) Rubber plants (natural or synthetic): RP

(jj) Sand and gravel plants: RP

(kk) Schools, and colleges: RP

(ll) Sewage and storm drain facilities: RP

(mm) Public swimming pools: RP

All assemblies an installations shall be subject to inspection and approval by the City of Albemarle Public Utilities Department.

(3) Filling of tanks/tankers or any other container from a City of Albemarle owned fire hydrant is strictly prohibited unless it has been equipped with the proper meter and backflow protection. Any unauthorized connection to a fire hydrant is considered an illegal cross-connection to the public water system and will be subject to fines and or imprisonment. City of Albemarle Fire Department and Stanly County Volunteer Fire Departments are exempt from this rule due to emergency or training requirements.

(4) If a cross-connection control inspector is unable to survey any portion of a private water system to determine the degree of hazard, due to confidential activities, a reduced pressure zone assembly will be required.

(B) Low hazard.

(1) All single-family residential homes will be considered a low hazard and shall have a minimum of a check valve device installed at the meter service.

(2) If no other backflow prevention assembly is specified a double check valve assembly must be installed on all private water systems.

(C) Imminent hazard.

(1) If it has been determined a customer's private water system has an imminent hazard; such customer must install a backflow prevention assembly specified by the Backflow Administrator and this chapter. This assembly must be installed within twenty-four (24) hours of notification from the Administrator. If the customer fails to install the specified assembly within the allowed time limit, water service to the customer's private water system will be terminated and may be subject to specified civil penalties. In the event the Backflow Administrator is unable to notify the customer in twenty-four (24) hours of determining an imminent hazard existing, the Administrator may terminate water service until the specified assembly is installed. These actions may be carried out under the Safe Drinking Water Act (Title XIV Section 1431) and the N.C. State Plumbing Code (appendix D104.2.6).

(2) Only a backflow prevention assembly offering a greater degree of protection may be installed in place of a specified assembly required by this chapter.
(Ord. 07-25, passed 9-4-07)

§ 52.09 NOTICES.

In the event a customer has reason to believe or that the customer's private water system has contaminated or polluted the public water system the customer shall notify the City of Albemarle Public Utilities Department immediately. The City of Albemarle will take immediate steps to isolate the area of contamination.
(Ord. 07-25, passed 9-4-07)

§ 52.10 VIOLATIONS.(A) Notification of violation.

(1) A written notice must be presented to any customer/person who has been found to be in violation of any part of this chapter.

(2) Such notice must explain the violation and give the time period within which the violation must be corrected. The time period set to correct a violation shall not exceed thirty (30) days after receiving notice unless otherwise specified. If the violation has been determined to be an imminent hazard the customer shall be required to correct the violation immediately or water service will be discontinued.

(3) In the event a customer is found in violation of this chapter and fails to correct the violation in a timely manner or to pay any civil penalty or expense assessed under this section, water service will be terminated and shall be reestablished when the violation is corrected and any applicable penalties are paid.

(4) Unprotected cross connection involving a private water system, which has an imminent hazard - \$1,000 per day not to exceed \$10,000.

(5) Unprotected cross connection involving a private water system which is of a moderate or high hazard - \$500.

(6) Submitting false records or failure to submit records, which are required by this chapter - \$500.

(7) Failure to test or maintain backflow prevention assemblies as required - \$100 per day.

(B) Reduction of penalty.

(1) The Administrator may reduce or dismiss any civil penalty imposed under this section if the Administrator has determined that the person charged with the violation has no past history of violation and has made corrections in a timely manner as set by the City of Albemarle Public Utilities.

(2) No civil penalty shall be reduced if it has been determined the violation was intentional.

(3) Any person violating any part of this chapter must reimburse the City of Albemarle for any expenses in repairing damage to the public water system caused by any violation and any expenses incurred for investigating a violation.
(Ord. 07-25, passed 9-4-07)

§ 52.11 APPLICABILITY.

The provisions of this section shall apply to all such persons or entities using public water both in and outside the city, regardless of whether any such person or entity using water shall have a contract for water service with the City.
(Ord. 07-25, passed 9-4-07)

§ 52.12 SEVERABILITY.

If any division, cause, or provision of this section shall be judged invalid, such adjudication shall apply only to such division, clause, or provision so adjudged, and the remainder of this section shall be declared valid and effective.
(Ord. 07-25, passed 9-4-07)