

**Sec. 36-78. Cross connection control, backflow prevention assemblies required, program established.**

(a) *Application, purpose, authorization.* This section applies to all persons who use, or connect in any way to, the public potable water distribution system of the town of Cary ("Public Water System"). The purpose of this article is to protect the public water system from contaminants and pollution "backflowing" into the public water system from private water systems by:

(1) Requiring the installation of backflow prevention assemblies which will minimize the possibility of contamination by confining within the customer's private water system those contaminants or pollutants, which could, under adverse conditions, back flow or back siphon through uncontrolled cross connections into the public water system; and

(2) Establishing a backflow prevention program.

(b) *Definitions.* As used in this article, the following definitions apply:

(1) *Backflow prevention assembly.* A "Backflow prevention assembly" (sometimes "BPA") means a device used to prevent backflow into the Public Water System from a customer's water service connection. The type of BPA required by this article to be used shall depend on whether the hazard, which can be an existing hazard or a potential hazard, presented by backflow from a particular private system is a "pollution" ("non-health") hazard or a "contamination" ("health") hazard. An "approved" Backflow prevention assembly is a BPA that has been approved by the American Society of Sanitary Engineers (ASSE) or the American Water Works Association (AWWA), or USC, or the Foundation for Cross Connection Control and Hydraulic Research, whichever is most restrictive.

(2) *Certified Backflow prevention assembly technician.* A "Certified Backflow prevention assembly technician" (sometimes "technician") is any person who has received from the town a certificate to install, test, repair, overhaul, or maintain approved backflow prevention assemblies. A backflow prevention assembly technician certificate will be issued to any person who:

a. Demonstrates knowledge of applicable laws, rules, and regulations applying to Backflow Prevention Assemblies in the state of North Carolina and in the town of Cary, and

b. Is a licensed plumber or has at least two years experience under and is employed by a North Carolina licensed plumber or plumbing contractor, or has equivalent qualifications acceptable to the town of Cary, and

c. Holds a certificate of completion from an approved training program in the installation, testing, repair, overhaul and maintenance of backflow prevention assemblies.

(3) *Consumer.* The term "consumer" means any customer of the town's public water system, or any person, firm, or entity using or receiving water from the town's public water system or owning or possessing property or facilities that receive water from, or connecting to the town's public water system.

(4) *Contamination hazard.* The term "contamination hazard" represents the type of existing or potential hazard presented by a private system and means an existing or potential impairment of the quality of the water, which creates a potential or actual hazard to the public health through the introduction of hazardous or toxic substances or waterborne health hazards in the form of physical or chemical contaminants or biological

organisms and pathogens.

(5) *Cross connection.* A "cross connection" means any unprotected actual or potential connection or structural arrangement between the town's public water system and any other pipe, conduit, source or system through which it is possible to introduce any contamination or pollution 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 or arrangements through which or because of which backflow can or may occur are considered to be cross connections.

(6) *Degree of hazard.* The term "degree of hazard" means whether the hazard or potential hazard is a "pollution" (non-health) hazard, or a "contamination" (health) hazard. The degree of hazard shall be determined by the town from the evaluation of conditions within a private water system and the use to which a property connected to public system is put.

(7) *Health hazard.* The term "health hazard" means an actual or potential threat of contamination of a physical, chemical, biological, pathogenic or toxic nature to the public or private water system to such a degree or intensity that there would be a danger to health. Examples of waterborne health hazards include, but are not limited to:

- a. *Physical:* Radioisotopes/radionuclides;
- b. *Chemical:* Lead, mercury and other heavy metals, organic compounds, other toxins and hazardous substances;
- c. *Biological:* Microorganisms and pathogens like cryptosporidium, typhoid, cholera and E. Coli.

(8) *Imminent Hazard.* The term "imminent hazard" means a health hazard situation that is likely to cause an immediate threat to human life, an immediate threat of serious physical injury, an immediate threat of serious adverse health effects, or a serious risk of irreparable damage to the environment if no immediate action is taken.

(9) *Pollution or Non-health Hazard.* The term "pollution or non-health hazard" means an actual or potential threat to the quality of water of the town's public system or a private potable water system. A non-health hazard is one that, if introduced into the public water supply system, could be a nuisance to water users, but would not adversely affect human health.

(10) *Private water system.* The term "private water system" means that part of a water service connection to the town's public water system which is located on the consumer's side of the town's water meter. A private water system may be a water service line to a single premise or structure or it may be a privately owned and maintained water distribution system, which serves more than one structure or premises. For the purpose of this article, once water from the town's public water system passes through the meter to the customer's side, that water is considered part of the private water system.

(11) *Public water system.* The term "public water system" means the town of Cary water system and includes all of the system for the provision to the public of potable water for human consumption through pipes or other constructed conveyances and includes:

- a. Any collection, treatment, storage or distribution facility and all appurtenance to those facilities under control of the town and used primarily in connection with the town's water system; and

b. Any collection, treatment, storage or distribution facility and all appurtenances to those facilities not under the control of the town that is used primarily in connection with the town's water system.

(c) *New unprotected cross-connections prohibited, existing cross-connections to be protected.* No contamination or pollution of public water system. All consumers and any other person or entity receiving water from the town's public water system shall be in violation of this article if they fail to comply with any of the following:

(1) *New water service connections.* No new residential or nonresidential water service connections to the public system, on or after the effective date of this article, shall be made unless equipped with an approved backflow prevention assembly. The BPA shall be tested and properly functioning as prescribed herein prior to the issuance of a certificate of occupancy for any building. All new nonresidential construction plans and specifications shall be made available to the town for review to determine the health hazard and level (health or non-health) to the town's public water system.

(2) *Existing water service connections.* An approved backflow prevention assembly shall be installed on all existing cross connections to the town's public water system upon notification of the need for installation by the town. Upon determining that a backflow prevention assembly is required to be installed on an existing water service connection the town will notify the consumer in writing of:

- a. The requirement for installation;
- b. The health hazard level ("health hazard" or "non-health hazard") which has been established for that customer by the town based upon the use of their premises;
- c. The type of approved backflow prevention assembly required;
- d. The date by which it must be installed and tested. The consumer will have the following time periods within which to install and test the specified backflow prevention assembly.

Health Hazard	Within 14 calendar days of date of notice, unless specified otherwise by the town
Non-health Hazard	Within 60 calendar days of date of notice

(d) *Contamination and pollution prohibited.* No consumer shall cause or allow any contamination or pollution of the town's public water system through uncontrolled backflow or backsiphonage from or through their private water system.

(e) *No cross-connections.* No private water system may be connected to any private well, or to any spring, or to any other water source not approved by the state of North Carolina as a public water supply and commissioned by the town as a public water supply source, or to any other private source of water, or to any plumbing located on private property which may be connected to any of the above. Any such connection must be terminated upon the effective date of this article. It shall also be unlawful to have plumbing cross-connected or so installed that water from the town's public water system and water from or in any private water system may in any way become intermingled.

(f) *Compliance.* No private water system shall be connected in any manner to the town's public water system nor may any service connection be made or maintained to the town's public water system unless the requirements of this article have been satisfied.

(g) *Approved BPAs and installations required.* Only an approved backflow prevention assembly shall be installed to meet the requirements of this article. Any backflow prevention assembly that is installed that is not an approved BPA, or any installation of any backflow prevention assembly, which is not installed in accordance with the provisions hereof shall be a violation hereof and must be replaced with an approved backflow prevention assembly, and/or installed in accordance with the ordinance from which this section is derived.

(h) *Notification of change in use of property.* The consumer shall notify the town within 10 calendar days of the date the nature of the use of any non-residential property connected to the town's public water system changes so that the town can reassess the health hazard level of that property.

(i) *Certification and testing program.*

(1) Installation, maintenance, testing and repair of BPAs shall be done only by a certified backflow prevention assembly technician. Consumers shall have a technician test the assembly system for proper operation and that technician shall certify the results in writing to the town.

(2) Any consumer or other person who removes or repairs any cross-connection condition shall notify the town for the purpose of securing an inspection or re-inspection by the town.

(3) All backflow prevention assemblies required by this article shall be installed in accordance with the manufacturer's instructions.

(4) All backflow prevention assemblies required by this article must be installed and maintained on the consumer's premises as part of the consumer's water system.

(5) Ownership, installation, testing and maintenance of a backflow prevention assembly and all costs associated therewith shall be the responsibility of the consumer.

(6) Each backflow prevention assembly required under this article must be accessible by the town.

(7) Any bypass around a backflow prevention assembly at any time, including when the assembly is in need of testing, repair or replacement, is prohibited. When it is not possible to interrupt water service, the customer shall provide for the parallel installation of an approved backflow prevention assembly.

(8) Backflow prevention assemblies with test ports or test cocks shall not be installed below ground.

(j) *Testing and repair of backflow prevention assemblies.*

(1) *Testing/Certification.* A certified backflow prevention assembly technician shall conduct testing of backflow prevention assemblies at the consumer's expense. Tests shall be conducted upon installation, and annually thereafter, with a record of all testing and repairs retained by the consumer. Each consumer shall send a copy of the report, certified by the certified backflow prevention assembly technician, for each test or repair to the town within 30 days after the completion of each test or repair. Such records must also be maintained by the consumer on forms provided by the town for a period of three

years.

(2) *Repairs.* Any time that repairs to a backflow prevention assembly are deemed necessary, whether through annual testing or routine inspection by the consumer or by the town, these repairs must be completed within a time specified below, in accordance with the health hazard level.

a. Health hazard facilities: Within seven days of discovery.

b. Non-health hazard facilities: Within 21 days of discovery.

(3) *Equipment.* All certified backflow prevention assembly technicians must obtain and employ backflow prevention assembly test equipment, which has been evaluated and/or approved by the town. All test equipment shall be registered with the town and shall be checked for accuracy annually (at a minimum), calibrated if necessary, and certified to the town as to such accuracy/calibration, employing a calibration method acceptable to the town.

(4) *Records.* It is unlawful for any consumer or certified backflow prevention assembly technician to submit any record to the town, which is false or fraudulent in any material respect. It is unlawful for any consumer or certified backflow prevention assembly technician to fail to submit any record, which is required by this section to the town. Such violations may result in any of the enforcement actions outlined in paragraph (m) of this section.

(k) *Protection of the public water system during bulk water sales.* No bulk water may be taken except as a sale from a fire hydrant through a metered assembly provided by the town which includes a reduced pressure principle Backflow prevention assembly. In addition, any truck, tank, or receiving vessel which is directly or indirectly connected to any pipe, hose, or outlet from the town's public water system must be equipped with an approved, permanently installed, air gap designed to create a minimum of four inches separation between the receiving tank or vessel and the connection to the town's public water system.

(l) *Backflow prevention assembly protection.* Any backflow prevention assembly which might be subjected to pressure surges or abnormally high pressures shall be protected against possible damage by a device approved by the town, such as a water hammer arrestor or a pressure reducing valve.

(m) *Violations.* Any consumer or other person who fails to comply with any provision of this section, or who fails to comply with any notice or order made hereunder, or who shall install or alter a private water system in violation of this section or any detailed statement of specifications or plans submitted and approved hereunder, or any certificate or permit issued hereunder, or who shall fail to comply with such a notice or order within the time fixed therein, or who shall submit a false or fraudulent report, or who fails to submit a report shall be in violation of this section for each such occurrence or noncompliance and shall be subject to enforcement as provided in this section.

(1) A written notice of violation shall be given to any person who is determined to be in violation of this section. Such notice shall be personally delivered, or delivered by certified mail, return receipt requested.

(2) Such notice shall set forth the violation and the time period within which the violation must be corrected. The violation must be corrected within the time period specified in the notice. If the town determines that the violation is occurring on a consumer's private water system and that such violation has created or contributed to the existence of an imminent health hazard, the consumer may be required to correct the violation immediately.

(3) Water service may be suspended or terminated to a consumer if the consumer fails to correct a violation in a timely manner or fails to pay any civil penalty or expense assessed under this section. Suspension or termination of water service will be without prejudice to the town's ability to assert any other remedy available to the town against the consumer or any other person responsible for the violation.

(4) The violation of any provision of this section shall subject the violator to a civil penalty. Each subsequent day that a violation continues shall constitute a separate and distinct offense. The offender shall be issued a written citation by delivery in person or mailed by certified or registered mail. The civil penalty must be paid within 72 hours of receipt of written citation by the offender.

- a. Unprotected cross connection involving a private water system, which is a health hazard, per day, \$1,000.
- b. Unprotected cross connection involving a private water system, which is a non-health hazard, per day, \$500.
- c. Falsifying records that are required to be submitted by this article, per violation, \$1,000.
- d. Failing to test backflow prevention assemblies as required, per violation, \$500.
- e. Failing to maintain backflow prevention assemblies as required, per violation, \$500.
- f. Any other violation of this section, per violation, \$500.

(5) The town may increase any civil penalty assessed by 50 percent of the maximum civil penalty associated with the violation for a second violation of the same provision within a two-year period. The town may increase any civil penalty by doubling the amount of the penalty for a third violation of the same provision within a two-year period. Water service may be terminated after a third violation of the same provision within a two-year period.

(6) Any person violating any provision of this article shall pay to the town all expenses incurred by the town in repairing any damage to the public water system caused in whole or in part by such violation and any expense incurred by the town in investigating such violation. All such expenses are deemed to be a part of the civil penalty assessed with the violation.

(7) The application of civil penalties shall not be held to prevent the enforced correction or removal of any prohibited condition.

(8) If a certified backflow prevention assembly technician submits falsified records to the town, the town may permanently revoke that certified backflow prevention assembly technician's town issued certification, which was issued by the town.

(n) *Administration of program.* The director of public works and utilities for the town, or designee, shall administer this program.

(Code 1982, § 19-42; Ord. No. 03-014, 11-13-2003)

**State Law References:** Civil penalties, G.S. 160A-175(c).