

## ARTICLE D. - WATER QUALITY PROTECTION

### Sec. 8-2141. - DEFINITIONS.

As used in this article, the *following* terms *shall* have the meanings provided in this section unless the context clearly indicates otherwise.

**Air-gap** . A physical separation sufficient to prevent backflow between the free-flowing discharge end of the public water system and any other system. Physically defined as a distance equal to twice the diameter of the supply side pipe diameter but never less than one (1) inch.

**Auxiliary intake** . Any piping connection or other device whereby water *may* be obtained from a source other than the City's public water supply.

**Auxiliary water supply** . Any water other than the City of Raleigh's public water supply as defined herein; including, but not limited to recycled water, grey water, rain water, well water, cistern water, reuse water and any other water supply from water purveyors other than the City of Raleigh.

**Backflow** . The flow of water or other liquids, mixtures or substances, under positive or reduced pressure in the distribution pipes of the public water supply from any source other than its intended source.

**Backflow assembly** . A mechanical valve arrangement used to protect the public water supply that meets or exceeds standards set forth by the University of Southern California for Cross Connection control and Hydraulic Research (USCFCHR) and the American Society of Sanitary Engineering (ASSE) by being on the agency's approval list. A backflow assembly used on fire suppression systems must have the additional approval of the Factory Mutual (FM) and comply with the National Fire Protection Association (NFPA) code.

**Backflow device** . A mechanical backflow assembly without shut-off valves or test cocks and that is not testable after installation.

**Backpressure** . A condition in which an *owner's* water supply system pressure is greater than the public water supply system pressure.

**Backsiphonage** . The flow of water or other liquids, mixtures or substances into the distribution pipes of the public water supply system from any source other than its intended source caused by the sudden reduction of pressure in the public water supply system.

**Building Story** . A building story is equal to 10' for the purpose of this article.

**Certified tester** . A *person* who has proven his/her competency to test and make reports on backflow assemblies as evidenced by certification of successful completion of a training program approved by the *Raleigh Director of Public Utilities* or his designee.

**Containment assembly** . A backflow assembly, installed at the point of separation between the public water supply and a private service or private distribution system or at the point of metering.

**Containment protection** . A containment assembly installed at the point of separation between the public water supply and a private service or private distribution system or at the point of metering.

**Cross-connection** . Any actual or potential connection between the public water supply and a source of contamination or pollution.

**Cross-connection control coordinator** . The official position established and authorized by the *City* and designated by the *Raleigh Director of Public Utilities* to administer, interpret this section and who *shall* be

a certified tester and may serve as Operator in Responsible Charge as recognized by North Carolina Department of Environmental and Natural Resources 15A NCAC 18D .0701.

**Double check valve assembly (DCVA)** . A type of *backflow* assembly manufactured pursuant to ASSE Standard 1015.

**Dual check valve** . A type of backflow device manufactured pursuant to ASSE Standard 1024.

**Fire line** . A system of pipes and equipment used to supply water in an emergency for extinguishing fire.

**Imminent health hazard**. A situation deemed an imminent health hazard by the cross connection coordinator pursuant to the standards set forth in the **Raleigh Public Utilities Handbook** .

**Interconnection** . Any system of piping or other arrangement whereby the public water supply is connected directly to a sewer, drain, conduit, pool, heat exchanger, storage reservoir, or other device which does or *may* contain *sewage* or other waste or substance which would be capable of imparting contamination to the public water supply.

**Isolation assembly** . A backflow assembly required by the North Carolina Plumbing Code that is installed within a private plumbing or distribution system to isolate a localized hazard from the remainder of the private system.

**Moderate Hazard** . A cross-connection or potential cross-connection involving any substance that generally would not be a health hazard but would constitute a nuisance or be aesthetically objectionable if introduced into the public water supply.

**Owner** . Any *person* who has legal title to, or license to operate or inhabit, a property upon which a cross-connection inspection is to be made or upon which a cross-connection is present.

**Public water supply** . The water and waterworks system of the *City* of Raleigh and its customers outside the corporate limits, for general use as potable water and which is recognized as a public water supply by the North Carolina Department of Environment and Natural Resources as system number 03-92-010.

**Reduced pressure zone principle backflow prevention assembly (RPZ)** . A type of backflow assembly manufactured pursuant to ASSE Standard 1013.

**Severe hazard** . A cross-connection or potential cross-connection involving any substance that could, if introduced into the public water supply, cause death or illness, spread disease, or have a high probability of causing such effects.

#### Sec. 8-2142. - COMPLIANCE WITH FEDERAL AND STATE LAW.

The *City* of Raleigh will comply with the Federal Safe Drinking Water Act, the North Carolina Drinking Water Act, and North Carolina State Building Code, which pertain to *cross-connections*, *auxiliary intakes* and *interconnections*, and establish an effective ongoing program to control potential sources of contamination of the *public water supply* .

#### Sec. 8-2143. - UNLAWFUL CONNECTIONS.

It *shall* be unlawful for any *person* to cause a *cross-connection*, *auxiliary intake* , or *interconnection* to be made within the *City's* public water supply; or to allow one to exist for any purpose whatsoever.

Sec. 8-2144. - INSPECTION OF PROPERTY.

It *shall* be the duty, upon request of the *Raleigh Director of Public Utilities* or his designee, of the *cross connection coordinator* to cause inspections to be made of *properties* served by the *public water supply* where *cross-connections* with the *public water supply* are deemed possible. The frequency of inspections and reinspections *shall* be set by the *Raleigh Director of Public Utilities* or his designee.

Sec. 8-2145. - RIGHT OF ACCESS.

The *Raleigh Director of Public Utilities* or his designee *shall* have the right to enter, at reasonable times, any nonresidential *property* served by a connection to the *Raleigh public water supply* for the purpose of performing the duties of this article. In those cases in which the *owner* chooses not to provide such access, the *Raleigh Director of Public Utilities* or his designee may classify the location as a severe hazard in accordance with §8-2147.

Sec. 8-2146. - EXISTING CONDITIONS.

Any *owner* that is subject to the requirements of this article *shall* be allowed ninety (90) days to correct any *cross-connections*, *auxiliary intakes*, *interconnections* or other hazard as defined by §8-2147 or other connection as defined in §8-2148 of this Code in violation of the provisions of this article. The ninety (90) days will be from the date of receipt of the notification in accordance with §8-2151. Notwithstanding the requirements of this section, if the *Raleigh Director of Public Utilities* or his designee determines that there is an imminent threat to the public water supply; water service may be discontinued until such violations are corrected.

Sec. 8-2147. - SEVERE HAZARDS.

(a) The *following shall* be classified as severe hazards:

- (1) Severe hazards include, but are not limited to: pumps, tanks or any other container for conveying, storing or otherwise handling *sewage*, radioactive, lethal, or toxic substances, boiler and steam connections, sewer waste lines, low inlets to receptacles containing toxic substances, coils or jackets used as heat exchangers, bacterial and viral materials, private wells or other private water supply, irrigation systems, water systems or hose connections, with booster pumps such as fire department connections (FDC) and private hydrants used in conjunction with FDC's, carbonation equipment, or similar severe hazard potential as determined by the *cross connection coordinator*.
- (2) Any location at which the nature or mode of operation within a structure are such that frequent alterations are made to the plumbing or at which there is a likelihood in the determination of the *cross connection coordinator* that protective measures *may* be subverted, altered, or disconnected.
- (3) Any structure which contains, but is not limited to, a bottling plant, cannery, five (5) or more building stories, battery manufacturer, exterminator, lawn care companies, greenhouse, chemical processing plant, dairy, dye works, film laboratory, car wash, hospital, other medical facilities including psychology and psychiatric offices that administer medications, commercial laboratory, laundries, tattoo parlor, metal fabricating operation, mortuary, swimming pool, morgue, x-ray equipment, medical office with laboratory, aspirator, medical washing equipment, packing house, plating plant, poultry house, power plant, nuclear reactor, those fire sprinkler

systems equipped with facilities for introduction of freeze preventive chemicals or other substances other than water, dental office, any radioactive material, restaurant, shopping mall with a tenant conducting any activity listed in this section and sewage pump or treatment facilities.

- (b) All installations described in §8-2147(a) of this Code *shall* be classified severe hazards, and must have a *containment assembly* in the form of a *reduced pressure zone backflow assembly* installed pursuant to §8-2149 of this Code.
- (c) Exemption. The *owner* of a property that is approved for mixed uses but who agrees to use the property only for uses that do not present a severe hazard may apply to the *Raleigh Director of Public Utilities* or his designee for an exemption to install a reduced pressure zone backflow assembly as required by §8-2147(b) above. An application for an exemption shall be made pursuant to the procedures set forth in the **Raleigh Public Utilities Handbook** . In the event that such exemption is approved, the *owner* shall install a containment assembly pursuant to the procedures established in the **Raleigh Public Utilities Handbook** and shall comply with all conditions of the approval of such exemption. Any exemption from the requirement to install a reduced pressure zone backflow assembly that is granted to an applicant shall be in effect only as long as the property is used for the purposes described in the application for exemption. If any conditions or uses of the property for which an exemption is granted change, the *owner* of the property shall re-apply for an exemption pursuant to this §8-2147(c).
- (d) Any *person* who fills any tank or tanker from the public water supply shall have an approved reduced pressure backflow assembly properly installed on the tank or tanker and an air gap. Tank or tankers include but are not limited to the *following* : those containing pesticides, fertilizers, or other toxic chemicals or their residues, flush trucks, *street* sweepers, and nonpotable water tankers.

Sec. 8-2148. - ALL OTHER USES: RESIDENTIAL AND MODERATE HAZARD.

(a) **Residential uses.**

Single service connections that serve no more than two dwelling units, not otherwise required by this Code to have other *containment assemblies* , shall have a *containment device* in the form of an *approved dual check valve* . Maintenance of *dual check valve containment devices* installed in accordance with this section *shall* be conducted by the Department of Public Utilities.

(b) **Moderate Hazards.**

All other connections to the *public water supply* of the *City* of Raleigh not deemed a severe hazard under §8-2147 or addressed in §8-2148(a) shall be classified as moderate hazards and *shall* have *containment assemblies* in the form of a *double check valve assembly* installed pursuant to §8-2149 of this Code. This *shall* include water mains installed to *City* standards, and with *City* supervision, but which are not maintained by the *City* , pursuant to §8-2007, including but not limited to manufactured home developments, apartments and townhouses, group living developments, and other private distribution systems, or similar hazard potential as determined by the *Raleigh Director of Public Utilities* or his designee.

(c) **Exemption.**

The *owner* of a commercial or institutional property that is supplied by only one service for domestic purposes may apply to the *Raleigh Director of Public Utilities* or his designee for an exemption to install a double check valve assembly as required in §8-2148(b) above pursuant to the procedures established in the **Raleigh Public Utilities Handbook** . An application for an exemption shall be made pursuant to the procedures set forth in the **Raleigh Public Utilities Handbook** . In the event that such exemption is approved, the *owner* shall install an approved dual check valve pursuant to the procedures established in the **Raleigh Public Utilities Handbook** and shall comply with all conditions of the approval of such exemption. Any exemption from the requirement to install a

containment assembly that is granted to an applicant shall be in effect only as long as the property is used for the purposes described in the application for exemption. If any conditions or uses of the property for which an exemption is granted change, the *owner* of the property shall re-apply for an exemption pursuant to this §8-2148(c).

Sec. 8-2149. - INSTALLATION OF CONTAINMENT ASSEMBLIES.

- (a) Containment assemblies *shall* be installed pursuant to City standards as set forth in this Article, the **Raleigh Public Utilities Handbook** , and the North Carolina Plumbing and Fire Codes.
- (b) In those cases in which any *containment assembly* was installed by a prior *owner* , the *City* , or any other person, the responsibility for maintenance, testing, and replacement as applicable *shall* be with the current *owner* .
- (c) The cost of any containment assembly, and any other plumbing modifications necessary and convenient to install a containment assembly, and the testing and maintenance thereof, shall be paid for by the *owner*.
- (d) Any containment assembly that has not been installed in accordance with this §8-2149 and whose location does not pose an imminent severe hazard to the public water supply shall be considered pre-existing and compliant with this Article. However, any pre-existing, compliant approved backflow assembly will be allowed to remain only in its original location and must be repaired with approved parts. If the containment assembly is removed or repaired with parts that are not approved, then such containment assembly shall no longer be considered pre-existing and compliant and shall be replaced with an containment assembly pursuant to this §8-2149.
- (e) Private distribution systems shall have a master meter and a master backflow assembly at each connection to the public water supply.

Sec. 8-2150. - NEW CONSTRUCTION.

All buildings proposing to connect to the public water system of the *City* of Raleigh receiving building permits, on or after the effective date of this article, *shall* be equipped with a containment assembly and tested as properly functioning as prescribed herein, prior to the issuance of a certificate of code compliance for that building. If a building permit was issued for the building prior to the effective date of the article, or a building permit was not required, the building *shall* be considered to be an existing building prior to the effective date, in accordance with §8-2146 of this Code.

Sec. 8-2151. - NOTIFICATION OF HAZARD.

Upon identification of any hazard or hazard potential, as defined in §8-2147 through §8-2148 of this code, the *cross connection coordinator shall* notify the *owner* of the property on which the hazard exists, of the *following* :

- (a) Location of hazard;
- (b) Nature of hazard observed;
- (c) Date hazard observed;
- (d) Section of Code applicable;
- (e) Requirements of Code.

All notices required by this article shall be delivered by hand-delivery to the *owner* or by certified mail to the *owner's* last known address. When service is made by certified mail, a copy of the notice may also be sent by regular U.S. Mail. Service shall be deemed sufficient if the notice sent by regular U.S. Mail is not returned by the U.S. Post office seven (7) days after mailing.

Sec. 8-2152. - CHANGE IN NATURE OF USE.

The Raleigh Department of Public Utilities *shall* be notified by the *owner* when the nature of use of the *property* changes so as to change the hazard classification of that *property* , as set forth in §8-2147 through §8-2148 of this Code.

Sec. 8-2153. - RESPONSIBILITIES.

- (a) The *owner* shall, upon notification pursuant to §8-2151 of this article, install an containment assembly as required by this article within ninety (90) days from the date of notification except those *owners* of properties with a cross-connection, auxiliary intake, interconnection or severe hazard as defined by §8-2147 that poses an imminent health hazard shall install any required containment assembly immediately.
- (b) If any required containment assembly has not been installed in conformance with standards set by this article and the **Raleigh Public Utilities Handbook** and within the timeframe set forth in the notification issued pursuant to §8-2151 of this article, the *Raleigh Director of Public Utilities* or his designee may discontinue the public water service at that property, and service shall not be restored until any required containment assembly has been installed. Except at properties where there is an imminent health hazard, an *owner* may apply to the *Raleigh Director of Public Utilities* or his designee for an extension of the time for compliance pursuant to the procedures set forth in the **Raleigh Public Utilities Handbook** . In the event the *Raleigh Director of Public Utilities* or his designee grants an extension of the time to comply, the *person* who is granted the extension shall indemnify and hold harmless the *City* from any harm or damages that may result from such *person*'s failure to install any required containment assembly as required by this article.
- (c) The *City shall* bear no liability for direct or consequential damages proximately caused by the discontinuance of service pursuant to this section.

Sec. 8-2154. - TESTING AND MAINTENANCE OF ASSEMBLIES.

- (a) The *owner* at a *property* where any *containment assembly* has been installed, except those with devices installed in accordance with §8-2148(a) of this Code, *shall* have each *containment assembly* tested by a certified tester and pursuant to the **Raleigh Public Utilities Handbook** ; *shall* cause any routine maintenance to such containment assembly to be performed as recommended by the manufacturer; and *shall* cause a report regarding that operational test to be submitted to the *City* pursuant to §8-2154(b) no later than fifteen (15) days following any testing event. Testing must be performed with equipment *approved* by the *City* of Raleigh. The *owner shall* cause such maintenance or repairs to be made, rendering the containment assembly fully operational. Failure of the *owner* to perform that testing and maintenance *shall* be cause for the premises to be deemed an immediate public health hazard. The *Raleigh Director of Public Utilities* may immediately thereafter discontinue *public water supply* service to that premises and service *shall* not be restored until all containment assemblies have been tested and the test demonstrates that the assemblies are fully operational. Where the use of water is critical to the continuance of normal operations or protection of life, *property* , or equipment, duplicate *containment assemblies shall* be provided by the *owner* to

avoid the necessity of discontinuing water service to test or repair the containment assembly or assemblies.

- (b) Any certified tester who performs an operational test on any containment assembly connected to the City's public water supply *shall* file a report regarding the results of that operational test using the City's designated electronic reporting system managed by the currently contracted vendor as published at [www.raleighnc.gov](http://www.raleighnc.gov). Certified testers *shall* supply all testing information required by the designated electronic reporting system to included but not limited to test values for containment assembly, size, make, model, serial number and location of containment assembly, name and address of *owner* as recorded on notice, premise number for fire services, meter number for domestic and irrigation services, and Wake County PIN number for containment assemblies on private distribution and fire sprinkler systems. The fee for any report filed using the electronic reporting system *shall* be ten dollars (\$10.00). In addition, certified testers *shall* comply with all requirements of this code and the **Raleigh Public Utilities Handbook** . Failure to comply *may* result in revocation of certified tester status pursuant to the **Raleigh Public Utilities Handbook** .
- (c) Records of any containment assembly inspection, test and maintenance *shall* be maintained on the *owner's property* for a minimum of three (3) years following the date of any inspection, test and maintenance.

#### Sec. 8-2155. - ENFORCEMENT.

- (a) Whenever the *Raleigh Director of Public Utilities* or his designee finds that any *person* has violated or is violating this article or any permit, regulation, standard, rule or order adopted in furtherance of this article, the *Raleigh Director of Public Utilities* or his designee may serve upon such a *person* a written notice stating the nature of the violation. If requested by the *Raleigh Director of Public Utilities* or his designee, a plan for the satisfactory correction thereof shall be submitted to the *Raleigh Director of Public Utilities* or his designee within the time frame specified in the enforcement policy adopted in accordance with subsection (e) below. Submission of this plan does not relieve the *person* of liability for any violations occurring before or after receipt of the notice of violation. In the event of an emergency that requires the *City* to take immediate action to correct the violation, the *City* is not required to provide an opportunity for the violator to correct the violations and may assess penalties and costs pursuant to this section without prior notice.
- (b) Any *person* who is found to have failed to comply with any provision of this article, any permit issued pursuant to this article, or any regulation, standard, rule or order adopted in furtherance of this article, shall be subject to a civil penalty of:
  - (1) For a first-time violator where the violation was not committed willfully or intentionally and is not an actual or potential risk to public health or safety, one hundred dollars (\$100.00) per day per violation.
  - (2) For a first-time violator where the violation was not committed willfully or intentionally and is an actual or potential risk to public health or safety, two hundred fifty dollars (\$250.00) per day per violation.
  - (3) For a repeat violator where the violations was not committed willfully or intentionally and is not an actual or potential risk to public health or safety, five hundred dollars (\$500.00) per day per violation.
  - (4) For a repeat violator where the violations was not committed willfully or intentionally and is an actual or potential risk to public health or safety, one thousand dollars (\$1,000.00) per day per violation.
  - (5) For a violator where the violation was committed willfully or intentionally, \$1,500 per violation.

The notice of the civil penalty assessment shall be issued in writing and shall set forth with reasonable care the basis of the civil penalty and any administrative costs and the costs to the *City*

of rectifying the noncompliance that are assessed. Any *person* violating any section of this article must pay to the *City* all expenses incurred by the *City* in repairing any damage to the utility system caused in whole or in part by such violation and any expense incurred by the *City* in investigating such violation.

- (c) The *Raleigh Director of Public Utilities* shall maintain an enforcement policy to implement this section which shall be submitted to the *City Council* for approval.
- (d) From and after the expiration of the time period specified in the notice of violation issued pursuant to subsection (a) above of this section for correcting a violation of this article, each subsequent day that the violation continues in existence shall constitute a separate and distinct offense subject to additional civil penalties.
- (e) Any appeal from a notice of violation or civil penalty assessment shall be made in writing to the *Raleigh Director of Public Utilities* within thirty (30) days of receipt of the notice of violation or civil penalty assessment issued pursuant to subsection (a) above of this Code. The *Raleigh Director of Public Utilities* shall use all reasonable efforts to notify the appellant in writing of his or her decision within sixty (60) days of receipt of the notice of appeal pursuant to the enforcement policy adopted pursuant to subsection (c) above of this section.
- (f) All notices required by this subsection may be served by certified mail or hand-delivery to the violator; certified mail or hand-delivery to the owner of the property in violation; or posting the notice at the property in violation. When service is made by certified mail, a copy of the notice may also be sent by First Class U.S. Mail. Service shall be deemed sufficient if the notice sent by First Class U.S. Mail is not returned by the U.S. Post office seven (7) days after mailing.
- (g) If payment is not received or equitable settlement reached after thirty (30) days after demand for payment is first made, the matter shall be referred to the *City Attorney* for institution of a civil action in the name of the *City* in the appropriate division of the general court of justice of Wake County for recovery of the penalty. If payment is not received or equitable settlement has not been reached within the specified time period, the *City* may interrupt water and sewer service to the property until such time that payment is received or equitable settlement has been reached.
- (h) Any *person* who violates any of the provisions of this article, any permit, or any regulation, standard, rule or order duly adopted in furtherance of this article, or who undertakes or continues any alteration, extension or construction of the utility system or part thereof without first obtaining a permit or written permission or who undertakes or continues any alteration, extension, or construction of the utility system or part thereof, except in conformity with the terms, conditions, requirements and provisions of an approved application, plan, or both shall be guilty of a misdemeanor punishable by imprisonment to the maximum number of days prescribed by law.
- (i) Whenever the *City Council* has reasonable cause to believe that any *person* is violating or threatening to violate any of the provisions of this article, or any permit, or any regulation, standard, rule or order duly adopted in furtherance of this article, or is undertaking or continuing any alteration, extension and construction of the utility system without first obtaining a permit or written permission, or is undertaking or continuing any alterations, extension, or construction of the utility system or part thereof, except in conformity with the terms, conditions, requirements and provisions of an approved application, plan, or both, the *City* may, either before or after the institution of any other action or proceeding authorized by this Code, institute a civil action in the name of the *City* for injunctive relief to restrain the violation or threatened violation. The institution of an action for injunctive relief under this subsection shall not relieve any party to such proceeding from any civil or criminal penalty prescribed for violations of this Code. The terms "undertakes" or "undertaking" as used in this section means the initiating of or continuing of or being financially responsible for any activity or phase of activity which results in the extension, construction, or alteration of any part of the utility system of the *City*.
- (j) The penalties and enforcement provisions established by this article may be applied in addition to or in lieu of the penalties established by other sections of this Code and applicable ordinances. The

remedies provided for in this article are not exclusive. The *Raleigh Director of Public Utilities* or his designee may take any, all, or any combination of these actions against a violator.

Sec. 8-2156. - LIMITATION OF LIABILITY.

The *City shall* not be held liable, for any cause, for failure to detect any containment assembly failing to operate adequately, or failure to identify any specific hazard, which *may* result in contamination of its *public water supply*, nor *shall* this article diminish the responsibility of any *owner* from whose *property* a contamination of the *public water supply may* originate.

Secs. 8-2157—8-2160. - RESERVED.