15A NCAC 18C .0406 DISTRIBUTION SYSTEMS

(a) Water Pipe Materials. Water pipes shall be cast iron, ductile iron, reinforced concrete, plastic, or other material designed for potable water system service and shall meet AWWA standards, section C, or be certified as meeting the specifications of ANSI/NSF Standard 61 Drinking Water System Components – Health Effects, which is incorporated by reference including any subsequent amendments and editions. Copies of AWWA standards may be obtained for public inspection as set forth in Rule .0503 of this Subchapter. Copies of ANSI/NSF Standard 61 may be obtained for public inspection as set forth in Rule .1537 of this Subchapter. The pressure rating class of the pipe shall be in excess of the maximum design pressure within that section of the water distribution system. The quality of pipe to be used shall be stated in the project specifications.

(b) Cross-Connections. No person shall construct, maintain, or operate a physical arrangement whereby a public water system has a cross-connection without the use of proper backflow protection.

(1) No person shall introduce any water into the distribution system of a public water supply through any means other than from a source of supply duly approved by the Department or its representatives or make any physical connection between an approved supply and unapproved supply unless authorized in an emergency by the Department or its representative.

(2) Service Connection Relation to Plumbing Code. No supplier of water shall provide a service connection to any plumbing system that does not comply with the North Carolina State Building Code, Volume II, and all applicable local plumbing codes. Where required, the supplier of water shall install or require to be installed an appropriate testable backflow prevention assembly prior to making the service connection. Design of backflow prevention assemblies for service connections shall not require Department review.

(3) Connections Requiring Departmental Review. Connections between a public water system and the connection types in Parts (A) through (D) of this Subparagraph shall require review and approval by the Department prior to making the connection. Installation of a testable backflow prevention assembly or air gap shall be required if the connection is non-potable or unapproved. Engineering plans and specifications shall be submitted in accordance with Section .0300 of this Subchapter.

(A) Any regulated public water system;

(B) any community non-regulated public water system. Before providing a connection, a supplier of water shall ensure that the construction of the non-regulated public water system either was approved in accordance with Rule .0301(a) of this Subchapter or that backflow prevention is provided in accordance with this Rule;

(C) non-potable water treatment processes within a potable water treatment plant; and

(D) all cross-connections between potable water supplies and non-potable or unprotected supplies that are not specifically addressed in this Rule or AWWA M-14 Backflow Prevention and Cross Connection Control.

(4) Backflow Prevention Not Addressed by the Plumbing Code. The following requirements shall apply to backflow prevention not addressed by the plumbing code.

(A) Testable backflow prevention assemblies shall meet American Society of Sanitary Engineering (ASSE) standards and carry an ASSE seal, be on the University of Southern California approval list for testable backflow prevention assemblies, or be on the North Carolina State Plumbing Code approval list for approved testable backflow prevention assemblies.

(B) For each identified water treatment process-related hazard, the supplier of water shall provide the appropriate backflow prevention assembly or method to protect the water supply and water treatment employees, in accordance with AWWA M-14 Backflow Prevention and Cross Connection Control.

(C) No person shall fill special use tanks or tankers containing pesticides, fertilizers, other toxic chemicals, or their residues from a public water system except at a location equipped with an over-the-rim free discharge of water or a reduced pressure backflow preventer properly installed on the public water supply. No supplier of water shall permit the filling of such special use tanks or tankers except at locations so equipped.

(D) A supplier of water shall not authorize for construction or other temporary, non-emergency use connections to hydrants that are not equipped with an approved air gap or an installed reduced pressure principle backflow prevention assembly.

(E) If storage capacity is used only for non-potable purposes and there is installed either an elevated or ground tank or a ground reservoir, the following precautions shall be taken:

(i) If the reservoir or tank is filled from a supply other than a public water supply and the public water supply is used as a supplemental supply, the pipeline from the public water supply shall be installed with an air gap.

(ii) If the reservoir or tank is filled entirely by water from a public water supply and:

(I) a covered ground reservoir or covered elevated tank is used, an approved reduced pressure back-flow preventer or an approved double check valve assembly shall be used; or

(II) an uncovered ground reservoir or uncovered elevated tank is used, an air gap shall be required.

(F) Installation. The following installation requirements shall be met, where applicable.

(i) Backflow prevention assemblies shall be installed in accordance with manufacturers' recommendations and specifications and shall not be modified in the field.

(ii) Back-flow prevention assemblies shall be located and installed in such a manner as to function as designed; be accessible for testing, maintenance, and inspection; and include all necessary test cocks and drains for testing. Valves shall be installed in the line at both ends of the back-flow prevention device to provide for replacement and maintenance.

(iii) Bypass lines parallel to a backflow prevention assembly shall have an approved backflow prevention assembly installed that is equal to that on the main line.

(iv) Reduced pressure principle assemblies shall be installed above ground or below ground in a vault with positive gravity drainage to atmosphere employing a drain of sufficient size to handle the full flow of discharge from a discharging assembly, 12-inch minimum clearance from vault walls and floor, and in accordance with manufacturer's recommendations. A reduced pressure principle assembly may be installed as protection for either a high-health or low-health hazard.

(v) Double check valve assemblies shall be installed either vertically or horizontal and above ground or below ground in a vault with positive gravity drainage to the atmosphere. A double check valve assembly shall be installed as protection for a low-health hazard only.

(vi) Pressure vacuum breaker assemblies shall be installed only where there is no possibility of a pressure higher than the supply pressure caused by a pump, elevated tank, boiler, air or steam pressure, or any other means which may cause backflow, and in accordance with manufacturer's recommendations. A pressure vacuum breaker shall be installed as protection for a high-health or low-health hazard that is subject to backsiphonage only and with no backpressure.

(5) Interconnection to a public water system shall be subject to the approval of the supplier of water and shall not be made until authorized by the supplier of water.

(6) A community or non-transient non-community public water system with five or more testable backflow prevention assemblies protecting the distribution system, as required pursuant to this Rule, shall maintain the following records beginning on January 1, 2020:

(A) records of the location, type, installation date, size, and the associated degree of hazard of backflow prevention devices whose failure would create a high-health hazard;

(B) a description of specific ongoing plans, actions, or schedules to inventory existing backflow prevention devices under Part (b)(5)(A) of this Rule and to identify and address all uncontrolled cross-connection hazards;

(C) final results of all backflow prevention assembly field testing and air gap inspections; and

(D) review of new service connections and existing service connections during a change of the account owner to ensure all required backflow prevention devices are properly installed and tested.

(E) a supplier of water which contracts with a third-party to implement any part of their cross-connection program may allow records required by this Paragraph to be maintained on the premises of the third-party, as long as the records are available on demand by the supplier of water.

(F) program records under Part (C) of this Subparagraph shall be maintained for a minimum of four years. Remaining records referred to in this Paragraph shall be maintained while still current or in use.

(7) Each supplier of water shall notify the Department of any known incident of backflow into the public water system that creates a risk of contamination as soon as practical upon discovery of the incident but no later than the end of the next business day. If requested by the Department, the supplier of water shall submit a written report of the incident describing the nature and severity of the backflow, the actions taken by the supplier of water in response to the incident, and the action plan intended to prevent such incidents in the future.

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