

## SECTION .1700 - PROTECTION OF WATER SUPPLIES

Rules .1701 - .1719 of Title 15A Subchapter 18A of the North Carolina Administrative Code (T15A.18A .1701 - .1719); has been transferred and recodified from Rules .1701 - .1719 of Title 10 Subchapter 10A of the North Carolina Administrative Code (T10.10A .1701 - .1719), effective April 4, 1990.

<b>15A NCAC 18A .1701</b>	<b>PURPOSE</b>
<b>15A NCAC 18A .1702</b>	<b>DESIGN AND CONSTRUCTION</b>
<b>15A NCAC 18A .1703</b>	<b>SITE SELECTION</b>
<b>15A NCAC 18A .1704</b>	<b>WELL CONSTRUCTION</b>
<b>15A NCAC 18A .1705</b>	<b>PROTECTION</b>
<b>15A NCAC 18A .1706</b>	<b>WATER SUPPLY NEEDED</b>
<b>15A NCAC 18A .1707</b>	<b>DISINFECTION</b>
<b>15A NCAC 18A .1708</b>	<b>TEST WATER QUALITY</b>
<b>15A NCAC 18A .1709</b>	<b>TYPES OF WELLS</b>
<b>15A NCAC 18A .1710</b>	<b>CONTAMINATION</b>
<b>15A NCAC 18A .1711</b>	<b>PROTECTION OF SPRINGS</b>
<b>15A NCAC 18A .1712</b>	<b>CISTERNS</b>
<b>15A NCAC 18A .1713</b>	<b>HORIZONTAL SUCTION LINES</b>
<b>15A NCAC 18A .1714</b>	<b>PITLESS ADAPTER</b>
<b>15A NCAC 18A .1715</b>	<b>DISINFECTION PROCEDURES</b>
<b>15A NCAC 18A .1716</b>	<b>DISINFECTION OF WELLS</b>
<b>15A NCAC 18A .1717</b>	<b>DISINFECTION OF SPRINGS</b>
<b>15A NCAC 18A .1718</b>	<b>DISINFECTION OF DISTRIBUTION SYSTEM</b>
<b>15A NCAC 18A .1719</b>	<b>AVAILABILITY OF BULLETIN</b>

*History Note:* Authority G.S. 130A-5(3); 130A-120; 130A-228; 130A-230; 130A-235; 130A-236; 130A-239; 130A-248; 130A-257; Eff. February 1, 1976; Readopted Eff. December 5, 1977; Amended Eff. June 10, 1978; Repealed Eff. September 1, 1990.

### **15A NCAC 18A .1720 WATER SUPPLIES**

(a) A water supply for which requirements are established in this Subchapter, shall be from a community water supply regulated pursuant to 15A NCAC 18C or from a supply located, constructed, maintained, and operated in accordance with this Section.

(b) The requirements found in Rules .1720(c) through .1728 of this Section shall not apply to community water supplies.

(c) The following setback requirements shall apply:

- (1) A well shall not be located in an area propensity for flooding. Areas which have a propensity for flooding include those with concave slope, alluvial or colluvial soils, gullies, depressions or drainage ways.
- (2) A well constructed on or after July 1, 1993 shall be located at a minimum horizontal distance from:
  - (A) Septic tank or nitrification field;  
100 ft.
  - (B) Other subsurface ground absorption waste disposal;  
100 ft.
  - (C) Industrial or municipal sludge spreading or wastewater irrigation site;  
100 ft.
  - (D) Watertight sewage or liquid-waste collection or transfer facility;  
50 ft.

- (E) Other sewage or liquid-waste collection or transfer facility;  
100 ft.
  - (F) Animal feedlot or manure pile;  
100 ft.
  - (G) Fertilizer, pesticide, herbicide or other chemical storage area;  
100 ft.
  - (H) Non-hazardous waste storage, treatment or disposal lagoon;  
100 ft.
  - (I) Sanitary landfill;  
500 ft.
  - (J) Other non-hazardous solid waste landfill;  
100 ft.
  - (K) Animal barn;  
100 ft.
  - (L) Building foundation;  
50 ft.
  - (M) Surface water body;  
50 ft.
  - (N) Chemical or petroleum fuel underground storage tank regulated under 15A NCAC 2N:
    - (i) with secondary containment;  
50 ft.
    - (ii) without secondary containment;  
100 ft.
  - (O) Any other source of groundwater contamination.  
100 ft.
- (3) For a well constructed prior to July 1, 1993, the minimum horizontal distances specified in Parts (C)(2)(A), (B), (D), and (L) of this Rule shall be reduced to no less than the following:
- (A) Septic tank or nitrification field;  
50 ft.
  - (B) Other subsurface ground absorption waste disposal system;  
50 ft.
  - (C) Water-tight sewage or liquid-waste collection or transfer facility;  
25 ft.
  - (D) Building foundation.  
25 ft.
- (4) A well constructed prior to July 1, 1993 serving an establishment regulated under 15A NCAC 18A in operation prior to July 1, 1993 shall be required to meet only the following minimum horizontal distance requirements:
- (A) Septic tank or nitrification field;  
50 ft.
  - (B) Other subsurface ground absorption waste disposal system.  
50 ft.
- (5) An owner, licensee or permittee shall not place or have placed a new source of contamination within the minimum horizontal distances in Subparagraphs (c)(1)-(4) of this Rule.
- (6) If different minimum horizontal distances requirements are set by the Division of Environmental Management pursuant to 15A NCAC 2C .0118 and .0119, those minimum horizontal distance requirements shall be used. The owner, licensee or permittees shall provide a written copy of the adjusted minimum horizontal distance requirements from the Division of Environmental Management to the local health department.

*History Note: Authority G.S. 95-225; 130A-5(3); 130A-230; 130A-235; 130A-236; 130A-248; 130A-257; Eff. September 1, 1990;*

*Amended Eff. May 1, 1996; July 1, 1993;*  
*Temporary Amendment Eff. May 25, 1998; May 5, 1998; March 1, 1998;*  
*Temporary Amendment (March 1, 1998) Expired December 11, 1998;*  
*Temporary Amendment (May 5, 1998) Expired January 26, 1999;*  
*Temporary Amendment (May 25, 1998) Expired March 12, 1999.*

**15A NCAC 18A .1721 WELL CASING**

- (a) For a well constructed after July 1, 1993, the well casing shall be terminated at least 12 inches above the land surface.
- (b) For a well constructed prior to July 1, 1993, the well casing shall be terminated at least six inches above the land surface.

*History Note: Authority G.S. 95-225; 130A-5(3); 130A-228; 130A-230; 130A-235; 130A-236;*  
*130A-248; 130A-257;*  
*Eff. July 1, 1993.*

**15A NCAC 18A .1722 WELL HEAD PROTECTION**

- (a) The base plate of a pump placed directly over the well shall be designed to form a watertight seal with the well casing or pump foundation.
- (b) In an installation where the pump is not located directly over the well, the annular space between the casing and pump intake or discharge piping shall be closed with a watertight seal designed specifically for this purpose.
- (c) The well shall be vented at the well head to allow for pressure changes within the well except when a suction lift type pump is used. Any vent pipe or tube shall be screened or otherwise designed to prevent the entrance of insects or other foreign materials.
- (d) For a well constructed after July 1, 1993, a hose bib shall be installed at the well head for obtaining samples. In the case of offset jet pump installations, the hose bib shall be installed directed downward on the pressure side of the jet pump piping. A vacuum breaker or backflow prevention device shall be installed on the hose bib.
- (e) For a well constructed after July 1, 1993, a continuous bond concrete slab or well house concrete floor extending at least three feet horizontally around the outside of the well casing shall be provided. The minimum thickness for the concrete slab or floor shall be four inches. The slab or floor shall slope to drain away from the well casing.
- (f) Any establishments permitted or licensed after July 1, 1993 shall have a continuous bond concrete slab or well house concrete floor extending at least three feet horizontally around the outside of the well casing. The minimum thickness for the concrete slab or floor shall be four inches. The slab or floor shall slope to drain away from the well casing.

*History Note: Authority G.S. 95-225; 130A-5(3); 130A-230; 130A-235; 130A-236; 130A-248;*  
*130A-257;*  
*Eff. July 1, 1993;*  
*Amended Eff. May 1, 1996.*

**15A NCAC 18A .1723 SPRINGS**

- (a) If a spring is serving an establishment regulated under 15A NCAC 18A on or before July 1, 1993, the spring shall be approved unless a violation of Rule .1725 of this Section is identified. If Rule .1725 of this Section is violated and violation remains after disinfection in accordance with Rule .1724(b) of this Section, or the removal of chemical constituents, the spring shall comply with all requirements of Paragraph (b) of this Rule. However, a spring which is in violation of Rule .1725(c) of this Section may

continue to be used if equipped with a continuous disinfection device in accordance with Rule .1727 of this Section.

(b) Any establishment permitted or licensed under 15A NCAC 18A after July 1, 1993, and any establishment developing a new spring shall meet the requirements of 2 NCAC 9C .0703, except Paragraphs (a), (b) and (f) shall not apply. 2 NCAC 9C .0703, except Paragraphs (a), (b) and (f) are hereby incorporated by reference including any subsequent amendments and editions. This material is available for inspection at the NC Department of Environment, Health, and Natural Resources, Environmental Health Services Section, 2728 Capital Blvd., Raleigh, North Carolina. Copies may be obtained from the Environmental Health Services Section at no cost.

(c) Springs approved pursuant to Paragraph (b) of this Rule shall not be connected to the establishment until compliance with this Section has been completed and the Department receives written certification from the owner of the establishment or a registered engineer, that the spring has been constructed in accordance with the approved plans and specifications.

*History Note: Authority G.S. 95-225; 130A-5(3); 130A-230; 130A-235; 130A-236; 130A-248; 130A-257; Eff. July 1, 1993; Amended Eff. May 1, 1996.*

#### **15A NCAC 18A .1724 DISINFECTION OF WATER SUPPLIES**

(a) A water supply serving an establishment regulated under this Subchapter shall be disinfected upon completion of construction, maintenance, repairs, pump installation, or a report of a positive coliform sample as follows:

- (1) chlorine in sufficient quantities to produce a chlorine residual of at least 100 milligrams per liter (mg/l) shall be placed in the supply;
- (2) a chlorine solution shall be placed in the supply in such a manner as to contact any water-contact parts and materials above the normal water level;
- (3) a chlorine solution shall stand in the supply for a period of at least 24 hours; and,
- (4) the supply shall flow to waste until no disinfectant can be measured with a test kit that measures chlorine levels.

(b) A spring enclosure shall be disinfected upon completion of construction, maintenance, repairs, pump installation, or a report of a positive coliform sample as follows:

- (1) the interior walls of the spring enclosure shall be washed or swabbed with a chlorine solution of at least 100 milligrams per liter (mg/l) or greater of chlorine residual approved by the Department;
- (2) the disinfectant shall be poured into the spring, the service pipe shall be plugged, and water shall be retained in the spring storage for at least 24 hours, or, disinfectant shall be fed into the spring continuously for at least 24 hours; and
- (3) the spring shall flow to waste until no disinfectant can be measured with a test kit that measures chlorine levels.

*History Note: Authority G.S. 95-225; 130A-5(3); 130A-228; 130A-230; 130A-235; 130A-236; 130A-248; 130A-257; Eff. July 1, 1993.*

#### **15A NCAC 18A .1725 WATER QUALITY**

(a) Prior to the initial use of a water supply, or after construction, maintenance, repairs, pump installation, or a report of a positive coliform sample, two consecutive bacteriological water samples taken at least 48 hours apart shall be collected by the Department and submitted to the Division of Laboratory Services of the Department of Environment, Health, and Natural Resources or another laboratory certified pursuant to

15A NCAC 20D for analysis. Prior to collecting the sample, the water shall be tested and shall be negative for chlorine residual. For the purposes of this Rule, confirmation means another positive sample result following the initial positive sample unless the last positive sample was preceded by two consecutive negative samples.

- (b) The water supply shall be deemed an imminent hazard under the following circumstances:
- (1) confirmation of the presence of fecal coliform bacteria.
  - (2) determination by the Environmental Epidemiology Section of the Department that the presence of chemical constituents are present at levels that constitute an imminent hazard as defined in G.S. 130A-2(3).
- (c) The water supply shall be deemed unsafe for use under the following conditions:
- (1) confirmation of the presence of total coliform.
  - (2) determination by the Environmental Epidemiology Section of the Department that the presence of chemical constituents are present at levels in violation of water quality standards found in 15A NCAC 18C .1500 and do not constitute an imminent hazard as defined in G.S. 130A-2(3).
- (d) After a positive sample has been followed by two consecutive negative samples collected at least 48 hours apart, follow-up samples shall be collected by the Department at least once each quarter, while the supply is in use, for one year. There shall be no treatment procedures between the two consecutive negative samples.

*History Note: Authority G.S. 95-225; 130A-5(3); 130A-230; 130A-235; 130A-236; 130A-248; 130A-257;  
Eff. July 1, 1993;  
Amended Eff. May 1, 1996.*

#### **15A NCAC 18A .1726 EMERGENCY SUPPLY SYSTEMS**

A water supply serving an establishment regulated under 15A NCAC 18A which is in violation of Rule .1725 of this Section may be replaced by an emergency supply system for a time period not to exceed three months provided the Public Water Supply Section determines that the emergency supply system meets all the following requirements:

- (1) The source of water used by the emergency supply shall meet the requirements of 15A NCAC 18C;
- (2) Containers, hoses, pumps, lines, or other means of conveyance used to transport the water is disinfected with a chlorine solution of at least 100 mg/l of chlorine prior to being placed into use and after each transfer of water;
- (3) A chlorine residual of no less than 0.2 mg/l of free chlorine is maintained at all times and the owner, licensee, or permittee shall maintain a log to record the level of free chlorine residual at least twice a day while the facility is in operation; and
- (4) The emergency supply system is sampled for bacteriological analysis at least every other week by the Department and at least weekly by the owner, permittee, or licensee. All samples shall be submitted to the laboratory section of the Department or another laboratory certified by the Department for the analysis. A copy of all sample reports collected by the owner, permittee, or licensee shall be submitted to the local health department having jurisdiction within three days of receipt of the report.

*History Note: Authority G.S. 95-225; 130A-5(3); 130A-230; 130A-235; 130A-236; 130A-248; 130A-257;  
Eff. July 1, 1993;  
Amended Eff. May 1, 1996.*

**15A NCAC 18A .1727 CONTINUOUS DISINFECTION**

(a) A supply which is in violation of Rule .1725(c)(1) of this Section may be used provided that the supply shall be continuously disinfected and a chlorine residual is maintained of at least 0.2 mg/l by use of equipment designed for this purpose. An operator shall be required for a water supply using continuous disinfection. The operator shall hold a valid certificate issued by the N.C. Water Treatment Facility Operators Certification Board.

(b) The owner, operator, or permittee shall provide to the Department a statement from the operator that a supply using continuous disinfection has a minimum chlorine residual of 0.2 mg/l and a chlorine contact time of at least 20 minutes.

(c) A disinfection device shall not be used to comply with a violation of Rule .1725 (b)(1) of this Section.

*History Note: Authority G.S. 95-225; 130A-5(3); 130A-228; 130A-230; 130A-235; 130A-236; 130A-248; 130A-257; Eff. July 1, 1993.*

**15A NCAC 18A .1728 PROHIBITED SUPPLIES**

(a) A supply in violation of Rule .1725(b)(1) of this Section shall be prohibited.

(b) Cisterns shall be prohibited.

*History Note: Authority G.S. 95-225; 130A-5(3); 130A-228; 130A-230; 130A-235; 130A-236; 130A-248; 130A-257; Eff. July 1, 1993.*