

NEW HANOVER COUNTY

BOARD OF HEALTH

RULES GOVERNING WATER SUPPLY WELLS

IN

NEW HANOVER COUNTY

NORTH CAROLINA

EFFECTIVE APRIL 5, 1995

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Section 3000 Purpose

To establish standards for the construction, installation, operation, maintenance and repair of water supply wells so as to minimize the risk of disease transmission through the consumption of groundwater, the New Hanover County Board Of Health declares that the following rules for protection of the public health are hereby adopted pursuant

to authority granted by Chapter 130A Section 39 of the North Carolina General Statutes, and shall apply throughout New Hanover County, North Carolina.

Section 3001 General Provisions

(a) **Scope** No person shall construct, install, operate, repair or abandon, or cause to be constructed, installed, operated, repaired or abandoned any water supply well contrary to the provisions of these Rules. These Rules supersede regulations, requirements, rules and standards relative to water supply wells previously adopted by the New Hanover County Board Of Health.

(b) **Conflict** The provisions of any federal, state or municipal law, ordinance, regulation or rule establishing requirements and standards affording greater protection to the public health, safety and welfare, and the groundwater resources shall prevail within the jurisdiction of such agency or municipality over requirements and standards established by these Rules.

(c) **Permits And Inspections** Prior to being utilized as a source of water for human consumption, all new water supply wells shall be inspected, found to conform with these Rules and found free of coliform bacteria. The Department shall conduct inspections of new water supply wells as soon as practicable after notification of construction or installation. The Department shall conduct inspections of existing water supply wells when construction and/or further development on or of a property is proposed so as to assure that minimum horizontal separation distances from potential sources of contamination are maintained.

Section 3002 Definitions

The following definitions shall apply in the interpretation and enforcement of these Rules:

Abandon means to discontinue the use of and to seal the well according to the requirements of Section 3009 of these Rules.

Access port means an opening in the well casing or well head installed for the primary purpose of determining the water level in the well.

Board Of Health means the New Hanover County Board Of Health.

Construction or installation of wells means all acts necessary to construct or install wells intended for domestic use including the location and excavation of the well, placement of casings, fittings, grouting, screens, development and testing.

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Contamination means any foreign material of such nature and quantity as to cause degradation of the quality of water.

Department means the New Hanover County Health Department or its authorized representative.

Director means Director of the New Hanover County Health Department or his (her) authorized representative.

Domestic use means water used for human consumption, bathing or other general household purposes.

Establishments operating under permit and/or inspection by the Department means establishments or facilities such as but not limited to restaurants, food stands, drink stands, temporary restaurants, temporary food stands, school lunchrooms, commissaries, meat and/or seafood markets, sandwich manufacturers, hospitals, rest/nursing homes, educational institutions, other institutions and schools; local confinement, residential care, child day care, migrant housing and lodging facilities; and, bed and breakfast homes, summer camps and swimming pools.

Owner means any person who holds the fee or other property rights in the well being constructed. A well is real property and its construction on land rests ownership in the land owner except when a written agreement to the contrary exists and indicates otherwise.

Permit means a written document issued by the Department permitting the construction or installation of a water supply well as defined in these Rules.

Person means any individual, firm, association, organization, partnership, business trust, corporation or company.

Public water system means a water system as defined in 15A NCAC 18C (Rules Governing Public Water Supplies).

Water supply system means in addition the well, pump and pipe used in connection with or pertaining to the operation of a water supply including pumps, pipes, pressure tanks and fittings.

Water supply well means a well constructed or installed to access and provide groundwater as a source of water to be utilized for domestic purposes.

Well means any excavation that is bored, cored, drilled, dug or otherwise constructed or installed for the purpose of locating, testing or withdrawing groundwater, or that may control, divert or otherwise cause the movement of water from or into any aquifer.

Well driller or contractor means any person engaged in the business of constructing or installing wells.

Well head means the upper terminal of the well including ports, seals, valves and other attachments.

Section 3003 Registration

(a) Every person engaged in the business of drilling, boring, coring, constructing, installing or repairing water supply wells shall register annually with the Department.

(b) Any person seeking to register with the Department shall initiate the process by submitting to the Director:

(1) a properly completed registration application form;

(2) evidence of valid registration with the North Carolina Department Of Environment, Health And Natural Resources; and,

(3) a registration fee established by the Board Of Health.

(c) To verify an applicant's or registrant's preparation to comply with these Rules, the Department may periodically inspect equipment, machinery and materials, and observe and/or review procedures utilized to drill, bore, core, construct, install or repair water supply wells.

(d) A registration fee established by the Board Of Health is payable at the time of initial application and, thereafter, during the period from July 1 to July 31 of each year.

(e) Registration shall expire and become invalid on August 1 of each year. In order to continuously maintain valid registration with the Department, a person shall do the following during the time period from July 1 to July 31 of each year:

(1) submit to the Director a properly completed registration application form;

(2) submit to the Director evidence of valid registration with the North Carolina Department Of Environment, Health And Natural Resources;

(3) demonstrate the availability and utilization of equipment, machinery, materials and procedures necessary to comply with these Rules; and,

(4) submit to the Director a registration fee established by the Board Of Health.

(f) If the applicant complies with items (b), (c) and (d), or item (e) of this Section, then the Director may issue a certificate of registration.

(g) Upon determination of willful violation of these Rules, registration shall be subject to revocation by the Director. Reissue of a revoked registration shall only be done in accordance with specific conditions and procedures prescribed by the Board Of Health.

Section 3004 Permits

(a) It shall be unlawful for any person to construct or install a water supply well without first obtaining a permit from the Department. The permit shall be secured by the owner or his/her authorized agent prior to construction or installation of a water supply well. Permits shall become invalid five (5) years from the date of issue if the water supply well has not been constructed or installed. Alterations and/or physical changes to a permitted water supply well site may be sufficient to invalidate the permit, if the Department determines the site no longer conforms with the requirements specified in these Rules. When a permit is declared invalid by the Department or has become invalid due to the lapse of time since the date of issue, the construction or installation shall not be commenced nor completed until a new (valid) water supply well permit has been obtained.

(b) A well that serves as a source of supply for a public water system shall comply with permit requirements established by the North Carolina Department of Environment, Health and Natural Resources in accordance with 15A NCAC 18C (Rules Governing Public Water Supplies).

(c) A well that serves as a source of supply for a water supply system serving an establishment operating under permit and/or inspection by the Department shall comply with permit and other pertinent requirements established in these Rules as well as standards established by the North Carolina Department of Environment, Health and Natural Resources in accordance with 15A NCAC 18A (Rules Governing Protection Of Water Supplies).

(d) The location of any proposed water supply well other than one that will serve as a source of supply for a public water system shall be approved and permitted by the Department prior to the beginning of any building construction and/or related activity on property.

(e) Any person seeking to obtain a well permit from the Department shall initiate the process by:

(1) submitting to the Department a properly completed well permit application form;

(2) submitting to the Department a scaled plot plan indicating the proposed location for the building foundation, plumbing stub-out, sewer connection and other pertinent information; and,

(3) submitting to the Department a site evaluation/permit fee established by the Board Of Health.

(f) The driller or contractor shall not commence any well construction or installation activity until the permit has been obtained. Through the duration of construction or installation procedures, the contractor shall maintain the well permit on the property.

(g) The Director is authorized to revoke any permit issued pursuant to these Rules upon determination that compliance with the provisions of these Rules is not being fully achieved. Reissue of a revoked permit shall only be done in accordance with specific conditions and procedures prescribed by the Director.

Section 3005 Standards Of Construction

(a) Water supply wells shall conform to the standards of construction established in and to any future amendments of 15A NCAC 2C (Well Construction Standards: Criteria And Standards Applicable To Water Supply And Certain Other Wells) with the exception of Subparagraph (i)(5)(A-E) of Rule .0107. These include but are not limited to the following criteria: location; source of water; drilling fluids and additives; casing; grouting; well screens; gravel and sand-packed wells; well development; and, well head completion with the exception of Subparagraph (i)(5)(A-E) of Rule .0107.

(b) Location.

(1) A water supply well shall not be located in an area generally subject to flooding. Areas which have a propensity for flooding include those with concave slope, alluvial or colluvial soils, gullies, depressions and drainage ways.

(2) The minimum horizontal separation between a well, intended for a single-family residence or other non-public water system, and potential sources of groundwater contamination shall be as follows unless otherwise specified:

- (A) Septic tank and nitrification field.....100 ft.
- (B) Other subsurface soil absorption
wastewater disposal system..... 100 ft.
- (C) Industrial or municipal sludge-
spreading or wastewater-irrigation sites100 ft.
- (D) Water-tight sewage or liquid-waste
collection or transfer facility..... 50 ft.
- (E) Other sewage and liquid-waste
collection or transfer facility.....100 ft.

- (F) Cesspools and privies.....100 ft.
- (G) Animal feedlots or manure piles.....100 ft.
- (H) Fertilizer, pesticide, herbicide or other chemical storage areas.....100 ft.
- (I) Non-hazardous waste storage, treatment or disposal lagoons100 ft.
- (J) Sanitary landfills500 ft.
- (K) Other non-hazardous solid waste landfills100 ft.
- (L) Animal barns100 ft.
- (M) Building foundations 50 ft.
- (N) Surface water bodies..... 50 ft.
- (O) Chemical or petroleum fuel underground storage tanks regulated under 15A NCAC 2N:
 - (i) with secondary containment 50 ft.
 - (ii) without secondary containment.....100 ft.
- (P) All other potential sources of groundwater contamination100 ft.

(3) For a well serving a single-family dwelling where lot size or other fixed conditions preclude the separation distances specified in Subparagraph (b)(2) of this Rule, the required separation distances shall be the maximum possible but shall in no case be less than the following:

- (A) Septic tank and nitrification field.....50 ft.
- (B) Water-tight sewage or liquid-waste collection or transfer facility 25 ft.
- (C) Building foundations 25 ft.
- (D) Cesspool or privies 50 ft.

(4) A well or well system, serving more than one single-family dwelling but with a designed capacity of less than 100,000 gpd, shall meet the separation requirements specified in Subparagraph (b)(2) of this Rule.

(c) Source Of Water.

(1) The source of water shall not be from a water bearing zone or aquifer that is known to be contaminated.

(2) The source shall be at least 20 feet below the land surface.

(d) Well Head Completion. A continuous bond concrete slab or well house concrete floor extending at least two (2) feet horizontally around the outside of the well casing shall be provided. The minimum thickness for the concrete slab or floor shall be four (4) inches. The slab or floor shall slope to drain away from the well casing.

Section 3006 Pumps And Pumping Equipment

(a) The pumping capacity of the pump shall be consistent with the intended use and yield characteristics of the well.

(b) The pump and related equipment for the well shall be conveniently located to permit easy access and removal for maintenance and repair.

(c) 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.

(d) In installations 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.

(e) The well shall be properly vented at the well head to allow for pressure changes within the well except when a suction lift type pump is used.

(f) A hose bibb for obtaining water samples shall be installed at the well head by the person installing the pump. In the case of offset jet pump installations, the hose bibb shall be installed on the return (pressure) side of the jet pump piping.

(g) A priming tee shall be installed at the well head in conjunction with offset jet pump installations.

(h) Joints of any suction line installed underground between the well and pump shall be tight under system pressure.

(i) The drop piping and electrical wiring used in connection with the pump shall meet all applicable underwriters specifications.

- (j) Contaminated water shall not be used for priming the pump.

Section 3007 Disinfection

Wells and distribution systems shall be disinfected upon completion of construction/installation, maintenance, repairs, pump installation and testing as follows:

(a) Sufficient quantities of chlorine shall be placed in the well to produce a chlorine residual of at least 100 parts per million (ppm) in the well. A chlorine solution may be prepared by dissolving high test calcium hypochlorite (trade names include HTH, Chlor-Tabs, etc.) in water. About 0.12 lbs. or two ounces of calcium hypochlorite containing 70 percent available chlorine is needed per 100 gallons of water for 100 ppm chlorine residual. As an example, a well having a diameter of two inches, has a volume of about two-tenths gallon per foot. If the well has 200 feet of water, the minimum amount of hypochlorite required would be 0.048 lbs. ($0.2 \times 200 \text{ feet} = 40 \text{ gallons}$, $0.12 \text{ lbs. per } 100 \text{ gallons}$, $0.12 \times 0.40 = 0.048 \text{ lbs.}$).

(b) Chlorine shall be placed in the well by one of the following or an equivalent method:

(1) Drop chlorine tablets in the top of the well and allow them to settle to the bottom.

(2) Place chlorine solution in the bottom of the well by using a bailer or by pouring the solution through the drill rod, hose or pipe placed in the bottom of the well. Flush the chlorine solution from the drill rod, hose or pipe with water or air.

(c) Agitate the water in the well to insure thorough dispersion of chlorine.

(d) Thoroughly rinse the well casing, pump column and any other equipment above the water level in the well with chlorine solution as a part of the disinfection process.

(e) Allow the chlorine solution to stand in the well and distribution system for a period of at least 24 hours.

(f) Open outdoor faucets until the well and distribution system is free of chlorine before putting the system into service.

(g) A sample of the water shall be collected and analyzed for bacteria by the

Department or a certified water analysis laboratory after chlorine has been removed from the well and distribution system, and prior to use of the water.

(h) If contamination persists after repeated disinfection, then the Department may require the well to be abandoned and sealed in accordance with Section 3009 of these Rules.

(i) Additional water analyses may be required if the Department has reason to suspect that harmful contaminants are present.

Section 3008 Maintenance And Repair

(a) Every well shall be maintained in a condition whereby it will conserve and protect the groundwater resources, and whereby it will not be a source or channel of contamination or pollution to the water supply or any aquifer.

(b) All materials used in the maintenance, replacement or repair of any well shall meet the requirements for new installation.

(c) Broken, punctured or otherwise defective or unserviceable casing, screens, fixtures, seals or any part of the well head shall be repaired or replaced, or the well shall be properly abandoned.

(d) Maintenance or repairs to either wells, pumps or pumping equipment which necessitate breaking of the well seal or otherwise exposing the well head, shall also require chlorination of the well and distribution system prior to resuming use as a water supply.

Section 3009 Abandonment

(a) Any well which has been abandoned, either temporarily or permanently, shall be abandoned in accordance with one of the following procedures:

(1) **Temporary Abandonment** Upon temporary removal from service or prior to being put into service, the well shall be sealed with a water-tight cap or seal compatible with casing and installed so that it cannot be removed easily by hand. The well shall be maintained whereby it is not a source or channel for contamination during temporary abandonment. Every temporarily abandoned well shall be protected with a casing.

(2) **Permanent Abandonment** All casing and screen materials may be

removed prior to initiation of abandonment procedures if such removal will not cause or contribute to contamination of the groundwaters. Any casing not grouted in accordance with Section 3005 of these Rules shall be removed or properly grouted. The entire depth of the well shall be sounded before it is sealed to insure freedom from obstructions that may interfere with sealing operations. The well shall be thoroughly disinfected prior to sealing. In the case of gravel-packed wells in which the casing and screens have not been removed, neat-cement shall be injected into the well completely filling it from the bottom of the casing to the top. Bored wells shall be completely filled with cement grout, dry clay or material excavated during boring of the well and then compacted in place. Wells other than bored wells constructed in unconsolidated formations shall be completely filled with cement grout by introducing it through a pipe extending to the bottom of the well which can be raised as the well is filled. Wells constructed in consolidated rock formations or that penetrate zones of consolidated rock may be filled with cement, sand, gravel or drill cuttings opposite the zones of consolidated rock. The top of the sand, gravel or cutting fill shall be at least five (5) feet below the top of the consolidated rock. The remainder of the well shall be filled only with cement grout.

- (b) Any well which acts as a source or channel of contamination shall be repaired or permanently abandoned within thirty (30) days of notification by the Department.
- (c) The drilling contractor shall permanently abandon any well in which the casing has not been installed or from which the casing has been removed, prior to removing equipment from the site.
- (d) The owner shall be responsible for permanent abandonment of a well except:
 - (1) as otherwise specified in these Rules; or,
 - (2) if well abandonment is required because the drilling contractor improperly locates, constructs or completes the well.

Section 3010 Records

- (a) Any person completing a well shall provide to the Department and owner a record of the construction or installation within the subsequent thirty (30) day time period.
- (b) The record shall include at least the following information: owner's name and address; location with actual horizontal separation distances from all known potential sources of contamination; diameter; depth; depth of casing; method and depth of

grouting; formation log; static water level; pumping water level; yield; and, date of completion or installation.

(c) The record shall include certification by the well driller or contractor that construction or installation was completed as required by these Rules.

Section 3011 Right Of Entry

Pursuant to authority granted by North Carolina General Statute 130A Section 17, the Department shall have the right to enter upon the premises of any property for the purpose of conducting an inspection and determining compliance with these Rules.

Section 3012 Appeals Procedure

(a) **Director** Appeals concerning interpretation and enforcement of these Rules shall be made by written petition to the Director and shall be made within fifteen (15) days of the challenged action. The Director may require the appellant to submit such information as deemed necessary to make a decision concerning interpretation and enforcement. The Director shall respond to affirm, modify or reverse the challenged action. When granting variance from these Rules, the Director may impose such conditions as deemed necessary to protect the public health.

(b) **Board Of Health** Appeals concerning decisions of the Director shall be made by written petition to the Board Of Health and shall be made within fifteen (15) days of the challenged action. The Board Of Health shall conduct a hearing within forty-five (45) days after receipt of an appeal petition and shall give the appellant not less than fifteen (15) days notice of the date, time and place of the hearing. The Board Of Health shall respond to affirm, modify or reverse the challenged action. When granting variance from these Rules, the Board Of Health may impose such conditions as deemed necessary to protect the public health.

Section 3013 Remedies

If a person violates any part of these Rules, then he/she shall be guilty of a misdemeanor and shall be subject to sanctions provided in Chapter 130A Section 25 of the North Carolina General Statutes.

Section 3014 Severability

If any provision of these Rules or the application thereof to any person or circumstance is declared invalid, then the remainder of these Rules or the application of such provision to other persons or circumstances shall not thereby be affected.

Section 3015 Effective Date

Adopted April 5, 1995 by the New Hanover County Board Of Health, these Rules shall be effective on and after April 5, 1995.

**Signed _____
Chairman
New Hanover County Board Of Health**

**Signed _____
Director
New Hanover County Health Department**