

ADOPTED

ORDINANCE NO. 81A-5

OCT 29 1990

BOARD OF SUPERVISORS
JAMES CITY COUNTY
VIRGINIA

AN ORDINANCE TO AMEND AND REORDAIN CHAPTER 4, BUILDING REGULATIONS, OF THE CODE OF THE COUNTY OF JAMES CITY, VIRGINIA, BY ADDING ARTICLE VI, WELL CONSTRUCTION.

BE IT ORDAINED by the Board of Supervisors of the County of James City, Virginia, that Chapter 4, Building Regulations, is hereby amended and reordained by adding Section 4-50. Short title, Section 4-51. Purpose, Section 4-52. Definitions, Section 4-53. Application and compliance, Section 4-54. Administration and enforcement, Section 4-55. General requirements for all wells, Section 4-56. Specifications for construction of shallow wells, Section 4-57. Specifications for construction of deep wells, Section 4-58. Specifications for grouting, Section 4-59. Specifications for well abandonment, Section 4-60. Administrative fees, Section 4-61. Inspections, Section 4-62. Notice to correct, Section 4-63. Penalties. Section 4-64. Exceptions, and Section 4-65. Appeals.

Chapter 4. Building Regulations

Article VI. Well Construction

Section 4-50. Short title.

This Article shall be known and may be cited as the "James City County, Virginia Water Well Ordinance" or simply as the "Well Ordinance."

Section 4-51. Purpose

The Board of Supervisors acting pursuant to Section 1 of Chapter 383 of the Acts of Assembly of 1985, as amended, and Sections 32-1-176.5, 15.1-510 and 15.1-510.1 of the Code of Virginia of 1950, as amended, for the purpose of preserving and protecting groundwater and protecting the public health, adopt this Article regulating the construction of wells.

Section 4-52. Definitions.

For the purposes of this Article, the following words and phrases shall have the meanings respectively ascribed to them by this Section:

Approved - Material, equipment, workmanship, process or method that has been accepted by the Office of Code Compliance and the local Health Department as suitable for the proposed use.

Authority - The James City Service Authority.

Contaminant - Any physical, chemical, biological or radiological substance or matter in water which exceeds the safe level for human consumption.

Disinfection - The destruction of all pathogens.

Exception - A relaxation or conditional waiver of a specific regulation where such exception will not be contrary to the public interest or any existing State Water Control Board or Health Department regulations.

Groundwater - Subsurface water occupying the zone of saturation.

Health Department - The Commonwealth of Virginia Department of Health.

Non-potable Water - All water not classified as potable water.

Person - Any individual, firm, corporation, partnership or other entity, singular or plural.

Pitless Adapter - A mechanical, gasketed device which is attached through a hole drilled or cut in the well casing, connecting to the pump drop pipe which is approved by the Health Department.

Potable Water - Water fit for human consumption and domestic use which is sanitary and normally free of minerals, organic substances, toxic agents and meeting all the testing standards of this Article.

Private Well Regulations - Regulations issued by the Health Department effective September 1, 1990, and any revisions thereof.

Water Well Completion Report - Form GW-2, published by the State Water Control Board or the Uniform Water Well Completion Report published by the Health Department and completed by the well driller.

Waterworks Regulations - Regulations issued by the Health Department dated February 1, 1982, and any revisions thereof.

Well - An artificial opening or artificially altered natural opening, however made, by which groundwater is sought or is intended to be artificially drawn. Wells deriving water at depths of one hundred feet or less are classified as "shallow," while wells deriving water at greater than one hundred feet are classified as "deep." Any water source heat pump, drive-point, exploration, testing, monitoring, observation or production well for whatever purpose constructed, is subject to this Article since improper construction can lead to groundwater contamination. This definition shall not apply to soil borings, dewatering wells, and similar holes.

Well Grouting - The filling of the annular space between the well casing and the natural earth or rock with a mixture of neat Portland cement and water or a combination of sand, Portland cement and water applied under pressure from the lower terminus of the grouting to the top of the well.

Section 4-53. Application and compliance.

- (a) The requirements of this Section shall apply to all new wells, both private and public, potable or non-potable.
- (b) Building contractors, developers, plumbers, well drillers and all persons making well and well pump installations shall be responsible for compliance with applicable sections of this Article and the Virginia Uniform Statewide Building Code. It shall be the responsibility of the well driller to secure the well permit from the Office of Code Compliance. The permit does not exempt persons from securing any approval or permit required by the Health Department, State Water Control Board or any other permit required by the Office of Code Compliance.
- (c) All well drillers shall comply with the minimum requirements of this Article and the Health Department Regulations.

Section 4-54. Administration and enforcement.

This Article shall be administered and enforced by the Director of Code Compliance or the General Manager of the Authority or their appointed designees.

Section 4-55. General requirements for all wells.

- a. All well construction shall conform with the Waterworks Regulations or Private Well Regulations;
- b. All well drillers shall be certified by the County. Proof of a well drillers certification by the County shall be required prior to issuing a permit. After January 1, 1992, all well drillers will be required to be certified in order to be issued a permit;
- c. All wells constructed under this Article shall be required to have the water tested for petroleum products. In addition, all wells constructed as a potable water source shall be required to have water tested for nitrates, chlorides and bacteriological contamination upon completion of the well and the installation of the well pump. All contaminants shall be tested by a State certified lab and shall not exceed the primary maximum contamination level as provided in the Waterworks Regulations;
- d. A Water Well Completion Report shall be prepared for each well and submitted to the owner, Health Department and the Authority;
- e. Drilling fluid mix water shall be from a potable water source;
- f. Drilling fluids shall be sodium bentonite drilling clay. Organic (starch-guard type) drilling muds shall not be used in any phases of drilling or construction, nor shall lime be used to thicken the drilling mud;
- g. Contractor shall not use any dangerous or toxic substances (bromides, petrochemicals, etc.) in the drilling fluid;
- h. Wells under construction shall be protected at all times so as to prevent any drainage or foreign matter from entering the casing or bore hole. When drilling operations are suspended temporarily, (i.e., overnight, weekends, holidays, etc.) the casing or bore hole shall be securely covered or capped. Upon completion of drilling, a secure cap or plug shall be placed on or in the top of the casing. In no case shall the driller remove his rig prior to the completion of grouting, and the installation of a secure cap, seal, or similar protective device on the casing;
- i. Upon completing construction of any potable well and the installation of the pumping equipment, the well shall be disinfected with a one hundred parts per million solution of calcium or sodium hypochlorite. After a minimum of 24 hours has elapsed, the well shall be thoroughly flushed by pumping until there is no residual chlorine detectable. After completion of disinfection, the driller shall provide evidence of at least one water sample showing an absence of bacteriological contamination;

- j. Casings shall not terminate in a pit, but extend a minimum of 12 inches above final ground or pumphouse floor elevation and a minimum of 2 feet above the 100-year flood elevation;
- k. The ground immediately surrounding the top of the well casing shall be sloped away from the well to a minimum distance of a five-foot radius with a minimum slope of a half an inch per foot;
- l. Centering guides shall be installed on well casings within five feet of ground level, at fifty feet below ground level and then at 100-foot intervals thereafter; and
- m. Reinjection of water or any other substances back into the groundwater system for heat pumps or any reason shall be prohibited.

Section 4-56. Specifications for construction of shallow wells.

Shallow wells are not desirable from a public health standpoint. However, when shallow wells are installed the following requirements shall apply:

- a. Casing or lining for bored or shallow wells shall be concrete, pvc or steel meeting all Health Department regulations;
- b. All bore hole diameters shall be drilled a minimum of three inches larger than the outer diameter of the casing or couplings which ever is greater. In the case of bored wells, the diameter shall be a minimum of six inches greater. Bore holes shall be sufficiently large enough for the installation of the tremie pipe(s) to ensure proper grouting;
- c. A solid concrete slab shall be provided at least two feet greater in diameter than the well casing and with a slope of at least one inch from the well casing to the edge of the concrete. This slab shall be at least six inches thick and the outer edge shall be above or flush with the final ground level;
- d. When PVC pipe is used and exposed outside, a steel protective casing and cap shall be secured into the concrete slab around that portion of the well exposed above ground level; and
- e. Grout mixtures and installation shall conform with specifications detailed in Section 4-58.

Section 4-57. Specifications for construction of deep wells.

Deep wells that are screened and gravel packed are the most desirable from a public health standpoint and shall conform with the following requirements:

- a. Casings and screens shall be pvc or steel meeting all Health Department Regulations;
- b. All bore hole diameters shall be drilled a minimum of three inches larger than the outer diameter of the casing or couplings whichever is greater. Bore holes shall be sufficiently large enough for the installation of the tremie pipe(s) to ensure proper grouting;
- c. All casings shall be constructed and installed so as to be watertight throughout the depth used and shall be approved by the Health Department;
- d. Screens when used shall be securely sealed to the casing by either welding or suitable threads so as to be watertight and shall be either stainless steel or pvc. Lead packers are prohibited for attaching screens to casings;
- e. The well casing shall conform with Section 4-55(j);
- f. Grout mixtures and installation shall conform with specifications detailed in Section 4-58;
- g. When PVC pipe is used and exposed outside, a steel protective casing and cap shall be secured into the concrete slab around that portion of the well exposed above ground level;
- h. A solid concrete slab shall be provided at least two feet greater in diameter than the well casing and with a slope of at least one half inch per foot from the well casing to the edge of the concrete. This slab shall be at least six inches thick and the outer edge shall be above or flush with the final ground level;
- i. The well terminus shall be sealed with an approved sanitary gasketed well seal or an approved pitless adapter and watertight vented terminus cap;
- j. Well vents, where required, shall be screened to protect against insects and shall be gooseneck type vents; and
- k. Pitless adapters if used shall be installed prior to grouting.

Section 4-58. Specifications for grouting.

All grouting procedures shall be inspected and the permit holder shall notify the Authority at least one working day in advance of any grouting operations. Grouting shall conform with all Health Department regulations and the following requirements:

- a. All wells shall be pressure grouted using an external steel tremie pipe(s) installed to the required depth to be grouted. All grouting that exceeds 20 feet must be pumped through the tremie pipe(s). Pouring grout through the tremie pipe(s) is acceptable if the depth does not exceed 20 feet;
- b. The tremie pipe(s) shall be constructed in such a manner to ensure positive placement of the grout around the casing;
- c. Grout shall be one of the following and may contain up to 6% by weight bentonite;
 1. Sand Cement Grout: A mixture of pure Portland cement (ASTM C-150), sand and water in the proportion of not more than two parts by weight of sand to one part of cement with not more than six (6) gallons of clean water per bag of cement (one cubic foot or 94 pounds) shall be used; or
 2. Neat Cement Grout: A mixture of pure Portland cement (ASTM C-150) and not more than six (6) gallons of clean water per bag (one cubic foot or 94 pounds) of cement, shall be used;
- d. Pumping equipment used for grouting shall be capable of installing the grout under adequate pressure to ensure positive placement of the grout around the casing;
- e. Grout shall be pumped through the tremie pipe until the grout appears at the surface. Grout shall be placed in one continuous operation. The tremie shall always remain beneath the surface of the cement during grouting and should be slowly raised as the cement level rises. The equipment used for pumping the grout shall be thoroughly clean of all foreign matter. Fuel oils and other petroleum liquids shall not be used to prevent cement from sticking to the pumping equipment;
- f. No further well construction work shall be done on the well until the grout has firmly set, a minimum of 48 hours;
- g. Any other method of grouting shall be approved by the Authority and the Health Department; and
- h. Well grouting shall be completed prior to the removal of the drill rig.

Section 4-59. Specifications for well abandonment.

Should any well be determined or required to be abandoned due to poor construction, potential source of contamination or any other reason the well shall be abandoned in the presence of the Authority General Manager or his appointed designee. Well abandonments shall meet all Health Department regulations and comply with the following procedures:

a. Well abandonment

1. The well shall be checked from land surface to the entire depth of the well to ascertain freedom from obstructions that may interfere with sealing operations;
2. The well shall be chlorinated by adding a minimum one hundred parts per million chlorine;
3. All casings may be salvaged;
4. Water bearing formations may be gravel packed opposite consolidated formations, but all unconsolidated formations must be grouted; and
5. The remaining area shall be completely filled with cement grout or clay slurry by introduction through a pipe initially extending to the bottom of the well. Such pipe shall be raised, but remain submerged in grout, as the well is filled. All grouting depths that exceed 20 feet must be pumped through the tremie pipe(s).

Section 4-60. Administrative fees.

A fee of \$50 shall be charged at the time of application to offset the cost of making inspections, issuing permits, enforcement and other expenses incident to the administration of this Article or to the filing or processing of any appeal or amendment thereto.

Section 4-61. Inspections.

The General Manager of the Authority, Director of Code Compliance, or their appointed designee shall be responsible for inspections and the approval or rejection of any material, equipment, workmanship, process or method involved in the construction and installation of wells. Inspections shall be scheduled at least one working day in advance and occur during the Authority's normal working hours. Inspections can be scheduled by calling the Office of Code Compliance. Inspections are required for all grouting operations and the completed well. An Operational Permit will be issued upon the satisfactory completion of the well and acceptance of the water quality test results.

Section 4-62. Notice to correct.

The General Manager of the Authority or Director of Code Compliance shall issue written notice requiring the permit holder to correct any violations of this Article or the terms of the permit within a reasonable period of time. Should any violation be uncorrectable the permit holder may be required to abandon the well as detailed in Section 4-59. Certificates of Occupancy and Operational Permits will not be issued by Code Compliance until all work is satisfactory completed. Failure to comply shall result in penalties being assessed under Section 4-63 and the denial of any further permits under this Article.

Section 4-63. Penalties.

Any person, whether as principal, agent, employee or otherwise, violating, causing or permitting the violation of any provision of this Article shall be guilty of a misdemeanor and, upon conviction thereof, shall be sentenced to pay a fine up to \$1,000.00 or undergo imprisonment for not more than one year, or both. Such person shall be guilty of a separate offense for each and every day during which any portion of any violation of this Article is committed, continued or permitted by such person and shall be punished as herein provided.

Section 4-64. Exceptions.

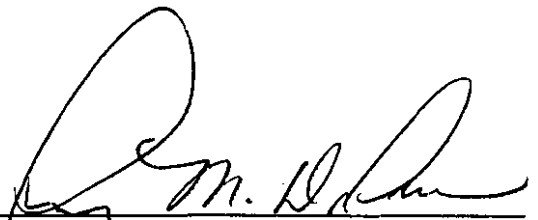
The Director of Code Compliance shall have the authority to grant exceptions to this Article for the use of alternative materials or construction methods subject to the following:

- a. the exception shall be consistent with the intent of this Article;
- b. the exception shall provide equivalent or greater protection to water quality and-or public safety;
- c. the exception does not conflict with any State Water Control Board or Health Department regulations;
- d. the exception shall be requested in writing with justification and documentation satisfactory to the Director of Code Compliance; and
- e. the Director of Code Compliance may impose reasonable conditions to the granting of the exception.

Section 4-65. Appeals.

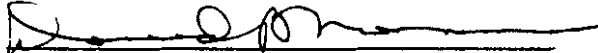
An owner of property subject to an administrative decision, order or requirement under this Article, or any well driller, building contractor, developer, plumber, or other person making installation of a well on such property may appeal by submitting a written application to the County Administrator no later than thirty days from the rendering of such decision, order or requirement. The County Administrator or his designee shall hear the appeal as soon as practicable after receipt of the application. In rendering a decision, the County Administrator or his designee shall balance the additional costs of complying with the administrative decision with any potential degradation of water quality and-or any potential safety hazard caused by granting an exception.

This Ordinance shall be in full force and effect beginning the 1st day of January, 1991.



Perry M. DePue, Chairman
Board of Supervisors

ATTEST:



David B. Norman
Clerk to the Board

<u>SUPERVISOR</u>	<u>VOTE</u>
NORMENT	AYE
TAYLOR	NAY
EDWARDS	AYE
KNUDSON	AYE
DEPUE	AYE

Adopted by the Board of Supervisors of James City County, Virginia,
this 29th day of October, 1990.

0321H