

Chester County, Pennsylvania
Chester County Health Department Rules and Regulations; Chapter 500, Water Nuisances,
Sewage and Liquid Waste

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Health Ordinance
Adopted: 1987
Revised: 1991 draft
Court Challenged: yes

CHESTER COUNTY HEALTH DEPARTMENT RULES AND REGULATIONS

CHAPTER 500. WATER, NUISANCES, SEWAGE AND LIQUID WASTE.

501. WATER WELL CONSTRUCTION, AND, INDIVIDUAL AND SEMI-PUBLIC WATER SUPPLIES.

501.1. **PURPOSE.** The purpose of these Rules and Regulations is to establish minimum standards for location, construction, modification or abandonment of water wells and installation; also, to require a permit for the construction of a water supply including production wells, test wells, test borings, and monitoring wells, and/or the installation of pumping equipment, and other appurtenances also, to license all well contractors and pump installation contractors. After the effective date of adoption of these Rules and Regulations, no well (either individual, semi-public or public) shall be constructed, repaired, or modified or any pump be installed, repaired or modified contrary to the provisions of these regulations.

501.2. **SCOPE.** Except where clearly noted in the text, the provisions of this Chapter 500, Section 501 shall apply to all wells serving private, semi-public, and public water supply systems. Nothing in this Chapter 500, Section 501, is construed to exempt a public water system from the requirements of the Pennsylvania Safe Drinking Water Act, (35 P.S. 721.1 et. seq.)

501.3. **DEFINITIONS.** The following words and terms when used in this Section, shall have the following meaning unless the context clearly indicates otherwise.

501.3.1. "Abandoned Supply": A supply, the regular use of which has been discontinued for a period of one year or more, or which is in such a state of disrepair that continued use for the purpose of obtaining groundwater is impracticable, such impracticability to be determined by the Department, or which has been replaced by a new well or public water supply.

501.3.2. "Alteration": Any action which necessitates entering a well with drilling tools; treating

a well to increase yield; altering the physical structure of depth of the well; blasting; removal or replacement of well casing; or alterations concerning grouting or curbing.

501.3.3. "Annular Space": The space between two (2) cylindrical objects, one of which surrounds the other, such as the space between a drillhole and a casing pipe and a liner pipe.

501.3.4. "ANSI": American National Standards Institute.

501.3.5. "API": American Petroleum Institute.

501.3.6. "Aquifer": A geological formation that contains and

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transmits water.

501.3.7. "ASTM": American Society for Testing Materials.

501.3.8. "AWWA": American Water Works Association.

501.3.9. "Back Siphonage": The flowing back of used, contaminated, or polluted water from a plumbing fixture or vessel or other sources into a potable water supply pipe due to negative pressure in such pipe.

501.3.10. "Casing": An impervious durable pipe placed in a well to prevent the walls from caving and to seal off surface drainage or undesirable water, gas or other fluids and prevent their entering the well.

501.3.11. "Coliform": All of the aerobic and facultative anaerobic, gram negative, non-spore forming, rod-shaped bacteria which are capable of fermenting lactose with gas formation within forty-eight (48) hours at thirty-five (35 C) degrees Celsius.

501.3.12. "Community Water System": A water system which serves at least 15 service connections used by year round residents or regularly serves at least 25 year round residents.

501.3.13. "Construction of Wells": All acts necessary to obtain groundwater, or artificially recharge groundwater. Provided however, such term does not include an excavation made for the purpose of obtaining or for prospecting for oil, natural gas, minerals, or products of mining or quarrying, or for inserting media to repressure oil or natural gas formations or for storing petroleum, natural gas, or other products and services. Construction of wells includes the location and excavation or drilling of the well, but excludes the installation of pumps and pumping equipment.

501.3.14. "Cross Connection" An arrangement allowing either direct or indirect connection through which backflow, including back siphonage, can occur between the drinking water in a public water system and a system containing a potential source of contamination.

501.3.15. "Flowing Well": A well that yields water by artesian pressure at the ground surface.

501.3.16. "Groundwater": Water within the earth below the table within the zone of saturation. Groundwater includes both water under water table conditions and confined within deep aquifers.

501.3.17. "Grout": A permanent water tight joint or connection made by filling with concrete, neat cement, or other approved impervious material between the casing and the undisturbed formation surrounding the well or between two (2) strings of casing.

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501.2.18. "Individual Water Supply": A system including wells, pumps, and piping equipment, which supplies water to a private home.

501.3.19. "Installation of Pumps and Pumping Equipment": The procedure employed in the placement and preparation for operation of pumps and pumping equipment, including all construction involved in making entrance to the well and establishing seals but not including repairs to existing installations.

501.3.20. "Non-Community Water System": A public water system which is not a community water system.

501.3.21. "N.S.F.": National Sanitation Foundation.

501.3.22. "Pitless Adaptor": A device or assembly of parts which will permit water to pass through the wall of the well casing or extension thereof, and which provides access to the well and to the parts of the water system within the well in a manner to prevent entrance of pollution into the well and the water produced.

501.3.23. "Pumps and Pumping Equipment": Any equipment or materials utilized or intended for use in withdrawing or obtaining groundwater including, but not limited to, piping, seals and tanks, together with fittings and controls.

501.3.24. "Pump Installation Contractor": Any person engaged in the business of installing or repairing pumps, pumping equipment, drop pipes, pitless adaptors, and the other equipment used for the extraction and conveyance of water from the aquifer to the distribution system of the structure to be served.

501.3.25. "Public Water System": A system which provides water to the public for human consumption which has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. The term is either a community or non-community system and includes collection, treatment, storage and distribution facilities under the control of the operator of the system and used in connection with the system. The term includes collection or pretreatment storage facilities not under such control which are used in connection with the system. The term also includes a system which provides water for bottling

or bulk hauling for human consumption.

501.3.26. "Semi-Public Water Supply": A water supply which services one or several facilities such as industrial or commercial establishments, parks, camps, hotels, motels, schools, institutions, eating and drinking establishments or a water supply which services two (2) or more dwelling units and is not a public water system as defined by the Pennsylvania Safe Drinking Water Act (35 P.S. 721.1 et. seq.)

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501.3.27. "Well": Any excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed when the intended use of such excavation is for the location, acquisition or artificial recharge of groundwater. This includes but is not limited to test wells, test borings, and monitoring wells, in addition to wells to be utilized as individual or semi-public water supplies.

501.3.28. "Well Contractor": Any individual, corporation, partnership, or association in immediate supervision of and/or responsible for the construction, test pumping or equipping or development of an individual or semi-public well or wells, test wells, test borings and/or monitoring wells.

501.3.29. "Well Seal": An approved device or method used to protect a well casing or water system from the entrance of any external pollutant at the point of entrance into the casing of a pipe, electric conduit or water level measuring device.

501.4. LICENSES.

501.4.1. Any person engaging or intending to engage in business as a well contractor or pump installation contractor shall first obtain from the Department a license to conduct such business. The Department shall license, as a well contractor, a pump installation contractor, or both, any person properly making application (therefore), who has knowledge of the rules, standards and procedures adopted under this Regulation, and has had not less than three (3) years of experience in the work for which he/she is applying for a license. Each such applicant must demonstrate professional competence by passing an examination prepared by the Department in order to qualify for such license. This section shall not apply to any persons who perform labor or services at the direction and under the supervision of a licensed well contractor or pump installation contractor.

501.4.2. Any person who was engaged in the business of a well contractor or pump installation contractor, or both, for a period of three (3) years immediately prior to the effective date of this regulation shall, upon application made within twelve (12) months of the effective date of this Regulation, accompanied by payment of the required fees, be licensed as a well contractor, pump installation contractor, or both, as provided in Subsection (1) of this Section without fulfilling the requirement that he pass any examination prescribed pursuant thereto.

501.4.3. A well drilling contractor shall place in a conspicuous location on each side of his well drilling machine his license number in letters not less than three (3) inches (7.62 cm) high

and in contrasting colors preceded by the letters CCHD # (Chester County Health Department License).

501.4.4. Licenses issued pursuant to this Section are not transferable and shall be renewed annually. A license will be renewed without examination for an ensuing year by making

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application not later than thirty (30) days after the expiration date and paying the annual renewal fee, which shall accompany said application.

501.4.5. After thirty (30) days elapse from the date of expiration of the license, a license to engage in the business as a well contractor or pump installation contractor will be issued only upon completion and submission of a license application, satisfactorily passing the appropriate contractor examination and submission of the appropriate fee.

501.4.6. Whenever the Department determines that the holder of any license issued pursuant to this Section has violated any provision of this Regulation, the Department is authorized to suspend or revoke any such license. Any person aggrieved by the action of the Department shall be afforded the opportunity of a hearing as provided in Chapter 100 of these Rules and Regulations.

501.4.7. The Department, upon application thereof and payment of the appropriate fees (as provided for in Chapter 700 of these Rules and Regulations) may issue a license as a Well Contractor, Pump Installation Contractor, or both, to any person who holds a similar license in any state, territory, or possession of the United States, or any foreign country, provided however, the requirements for licensing of a Well Contractor, Pump Installation Contractor or both, under which the license was issued do not conflict with the provisions of this Regulation and are of a standard not lower than that specified by the provisions of this Regulation.

501.5. LOCAL REGULATION. No city, township, or borough located within Chester County, shall adopt any rule, regulation, standard or procedure not in conformity with the standards, rules and regulations or procedures of the Chester County Health Department, and any regulation, ordinance, standard or procedure presently in existence shall be superseded to the extent that it is inconsistent with the rules, regulations, standard or procedures adopted by the Department.

501.6. DRILLED WATER SUPPLY WELLS.

501.6.1. LOCATION

501.6.1.1. The source of supply shall be from a water bearing formation drawn not less than twenty-five (25) feet (7.6 m) from the ground surface.

501.6.1.2. Cap wells shall be located at a point free from flooding and at a higher elevation (wherever possible) and at the following minimum distances to existing or potential sources of pollution:

Sources of Pollution

Minimum Distances

Minimum isolation distances from the proposed well to the facilities listed below:

Lakes, ponds, streams or other surface waters 25 feet (7.6 m)

Storm drains, retention basins,
storm water stabilization ponds 25 feet (7.6 m)

Preparation area or storage area of
hazardous spray materials, fertilizers of
chemicals; salt piles 300 feet (91.5 m)

Gravity sewer lines and drains carrying 50 feet (15.2 m)
domestic sewage or industrial waste 10 feet (3.04 m)
(except when the sewer line is cast iron pipe
with either watertight lead caulked joints or
joints filled with neoprene gaskets, or if solvent
welded Schedule 40 (or SDR equivalent) or better
polyvinyl chloride (PVC) pipe).

Sewage drains carrying domestic sewage or 50 feet (15.2 m)
Industrial waste under pressure (except welded 10 feet (3.04 m)
steel or concrete encased pipe)

Septic tanks or aerobic tanks 50 feet (15.2 m)

Subsurface sewage disposal systems, 100 feet (30.4 m)
elevated sand mounds, etc.

Sewage seepage pits, cesspools 100 feet (30.4 m)

Farm silos, barnyards 100 feet (30.4 m)

Rainwater pits 25 feet (7.6 m)

Spray irrigation site; sewage 300 feet (91.2 m)
sludge and septage disposal sites

Property lines or Right-of-Way 10 feet (3.04 m)

Dedicated road Right-of-Way 15 feet (4.56 m)

Building foundations (except for buildings 30 feet (9.12 m)

enclosing just water wells and/or water well pumps.)

Any other source of pollution As approved

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501.6.1.3. Any proposed deviation or modification to Paragraph 501.6.1.2. above must be approved in writing by the Director, with reasons stated for such deviation or modification.

501.6.2. CONSTRUCTION.

501.6.2.1 CASING

501.6.2.1.1. All wells supplying individual, semi-public or public water supplies shall be equipped with a watertight and durable wrought iron, steel, plastic (PVC) or other type of approved casing of a minimum thickness of 3/16 inches (0.476 cm) or .175 inches minimum for PVC (0.4445 cm). The sections of casing shall be joined together by threaded couplings or joints, by welding, or by any other watertight approved joint or coupling. The casing shall be carried to a minimum depth of twenty (20) feet (6.1 m) and (then) extended an additional five (5) feet (1.52 m) into firm bedrock or other impervious strata and grouted in place. Well casing material other than wrought iron or steel must be resistant to the corrosiveness of the water and to the stresses to which it will be subjected during installation, and grouting operation. Casing and grouting materials must be compatible. The criteria established in AWWA Standard A100-84 must be followed.

501.6.2.1.2. Ferrous Casings: Shall:

501.6.2.1.2.1. be new pipe meeting ASTM or API specifications for water well construction.

501.6.2.1.2.2. have additional thickness and weight if minimum thickness is not considered sufficient to assure reasonable life expectancy of the well.

501.6.2.1.2.3. be capable of withstanding forces to which it is subjected.

501.6.2.1.2.4. be equipped with a drive shoe.

501.6.2.1.2.5. have full circumference welds or threaded pipe joints.

501.6.2.1.3. Non-ferrous casings shall meet appropriate ANSI/ASTM or NSF Standards for well casing applications as outlined in AWWA Standard A100-84. Non-ferrous casing materials shall not impart any taste, odor, or toxic substances to the well water. Nonferrous casing, if used, shall not be driven. The casing shall be placed a minimum of 5 (1.52 m) feet into the consolidated formation with a minimum annular opening of 3 inches (7.62 cm) or larger so that the grout may be placed in accordance with the provisions of this section 501.

501.6.2.1.4. Watertight well casing must be placed at a sufficient depth to prevent the entrance

of pollution from surface runoff and polluted aquifers.

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501.6.2.2. Grout Materials And Location.

501.6.2.2.1. In all well installations an annular space shall be provided between the well casing and the earth formation. The annular space shall be completely filled with approved grout materials, in one continuous operation, under pressure from the bottom to the natural landsurface, within twenty-four (24) hours after completion of the drilling. In the event that grouting is done following the completion of all drilling operations, care must be taken to prevent the entrance of drillers mud into the annulus during the completion of the borehole by the use of a rubber packer or other acceptable method. The annular space shall be completely cleared of all obstructions prior to the placement of the grout material. Exterior grouting methods must be used in this instance. The casing shall be sealed effectively against entrance of water from water bearing zones which are subject to pollution, through which the casing may pass, by grouting a minimum of ten (10) feet (3.04 m) above and ten (10) feet (3.04 m) below the polluted or undesirable water-bearing zone. During the installation of the pitless adaptor, grout material may be removed from the exterior of the casing in order to provide a water tight seal between the casing and the pitless adaptor.

501.6.2.2.2. After the grout has been placed in the annular space, drilling of the borehole may proceed for a maximum (4) hours, and if not completed within that time period, a curing time of thirty-six (36) hours must be provided before drilling may resume. A curing time of twelve (12) hours for Type III Portland cement must be provided immediately following the placement of the grout. Drilling is not permitted during the curing period. If casings of smaller diameter are used in the lower portion of the well, effective watertight seals shall be provided between the casings where they telescope for a minimum distance of four (4) feet (1.21 m).

501.6.2.2.3. The annular space of all well installations must be filled with one of the following listed grout materials. The approximate quantities of cement required to grout a 10 foot (3.04m) section of annular space is given in the following table 501.A.

501.6.2.3.1. Neat cement grout shall consist of a mixture of API Class G (or Class B similar to ASTM C150 Type II) and water in the ratio of 0.67 cu. ft. (0.019 m³) of water per 94 lb (42.7 Kg) sack weighing approximately 228 lbs/cu. ft. A maximum of six percent by weight bentonite and two percent of calcium chloride may be added.

501.6.2.3.2. Pozmix-cement grout shall consist of a mixture of fifty percent by volume of Pozzolan A (74 lbs/cu. ft)(1185 kg/m³) and fifty percent by volume of API Spec. 10, Class G cement with 0.77 cu. ft. (.02 m³) of water per 84 lbs. (38.2 kg) of mixture. To this mixture may be added a maximum of two

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percent by weight, bentonite and a maximum of two percent by weight of calcium chloride, at the discretion of the contractor.

501.6.2.2.3.3. Concrete grout shall contain 5.3 sacks of Portland cement (ASTM C150 Type II) per cubic yard of concrete and a maximum of 7 gal. (0.026 m³) of water per 94 lb. (42.7 kg) sack of cement. The maximum slump shall be 4 in. (10.16 cm). The aggregate shall consist of 47 percent sand and 53 percent coarse aggregate, conforming to ASTM Designation C-33. The maximum size aggregate should be 0.75 in. (1.9 cm). Concrete grout shall not be placed in an annulus of less than 3 in. (7.62 cm).

501.6.2.2.3.4. Sand cement grout shall consist of a mixture of Portland cement (ASTM C150 Type II), 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 6 gal. (0.022 m³) of water per 94 lb. (42.7 kg) sack of cement.

501.6.2.2.4. In all well installations if rapid loss of grout material occurs during placement, coarse fill material (e.g. sand, gravel, crushed stone, dry cement) may be used in the zone or zones in which the rapid loss is occurring. The remainder of the annular space, shall be grouted as provided below. In no case shall pouring, dumping or shoveling of grout material into the annular space be deemed an approved method of grout placement.

501.6.2.3. Grout Placement. (See Chart on following page).

501.6.2.3.1. Grout Pipe Outside Casing.

501.6.2.3.1.1. The annular space shall be a minimum of 1-1/2 inches (3.81 cm) diameter of drilled hole equal to casing O.D. plus 3 inches (7.62 cm). All grout shall be placed by pumping through the grout pipe. The entire interval to be grouted shall be open and without obstructions. Washing or jetting with water is recommended for cleaning the borehole and may serve to remove obstructions caused by caving which otherwise would prevent a proper grout. It is recommended that the grout pipe extend from the surface to the bottom of the interval to be grouted. The grout pipe may remain extended to the bottom of the interval during and after grouting, or it may be raised slowly as the grout is placed provided that the discharge end of the group pipe remains submerged in the emplaced grout at all times until grouting is completed. In the event of interruption in the grouting operations, the bottom of the grout pipe shall be raised above the grout level and should not be re-submerged until the air and water have been displaced from the grout pipe.

501.6.2.3.1.2. Grouting Depths Greater than 30 feet (9.1 m). The minimum length of grout pipe that shall be inserted into the annular space is 30 feet (9.1 m).

501.6.2.3.1.3. Grouting Depths of 30 feet (9.1 m) and less.

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Grout may be placed by a tremie pipe inserted only a short distance (approximately 5 feet (1.5 m) into the annular space provided that the entire interval to be grouted is clearly visible from the surface and is dry. An annular space larger than the minimum 1-1/2 (3.8 cm) inches may be required to assure visibility from the surface.

501.6.2.3.2. Grout Pipe Inside Casing. The bottom of the casing is fitted with a packer arrangement, also referred to as a cementing shoe or float shoe, and the casing is placed in the borehole a short distance off the bottom. The float shoe allows grout to be pumped through the grout pipe and upward into the annular space, while preventing grout leakage into the casing during grouting and after removal of the grout pipe. Grouting is continued until cement appears at the surface at which time the grout pipe is disconnected from the float shoe. The float shoe is drilled out after the grout sets and hardens sufficiently.

501.6.2.3.3. Interior Method Two Plug: The first plug separates the grout from the fluid in the casing, and the other separates the grout from water pumped in above it. First, the casing is placed a short distance off the bottom. After pumping water through the casing to circulate fluid in the annular space and clear any obstructions from the hole, the first plug is inserted, and the casing is capped. A measured volume of grout is pumped in, which is sufficient to fill the annular space. The casing then is opened, and the second plug inserted. A measured volume of water is pumped in above the second plug until it is pushed to the bottom of the casing and most of the grout is expelled up and into the annular space. The water in the casing is held under pressure to prevent the backflow of grout until it has set and hardened.

501.6.2.3.4. Interior Method Upper Plug. The casing is placed a short distance off the bottom, and the water is pumped into the casing to circulate fluid through the annular space to clear any obstructions from the hole. A measured quantity of grout slightly greater than that needed to fill the annular space is pumped into the capped casing. Because this grout is in direct contact with the drilling fluid, there will be a narrow zone of weak grout between the drilling fluid and good grout; however, this zone should remain inside the casing and not be forced into the annular space. The casing is opened, and a drillable plug is inserted. A measured volume of water is pumped in above the plug until it is pushed to the bottom of the casing and most of the grout is expelled up and into the annular space. The water in the casing is held under pressure until the grout sets and hardens.

501.6.2.3.5. Interior Method Capped Casing. The casing is placed a short distance off the bottom, and water is pumped into the casing to circulate fluid in the annular space and clear any obstructions from the hole. The grout pipe passes through an air-tight cap at the top of the casing and is positioned 3 to 4 feet above the bottom of the casing. The grout pipe is assembled

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specific capacity and low aperture velocity. Usually, the entrance velocity should not exceed 0.1 feet per second,

501.6.2.5.5. be installed so that the pumping water level remains above the screen under all operating conditions,

501.6.1.5.6. be designed and installed to permit removal or replacement without adversely affecting water-tight construction of the well, and

501.6.1.5.7. be provided with a bottom plate or washdown bottom fitting of the same material as the screen.

501.6.2.6. Gravel packs. Gravel packs when used:

501.6.2.6.1. shall be well rounded particles, 95 percent siliceous material, that are smooth and uniform, free of foreign material, properly sized, washed and disinfected immediately prior to or during placement,

501.6.2.6.2. shall be placed in one uniform continuous operation.

501.6.2.6.3. Gravel refill pipes, when used, shall be Schedule 40 steel pipe incorporated within the pump foundation and terminated with screwed or welded caps at least 12 inches (30.48 cm) above the pump house floor or concrete apron,

501.6.2.6.4. gravel refill pipes located in the grout annular opening shall be surrounded by a minimum of 1.5 inches (3.81 cm) of grout.

501.6.2.6.5. Protection from leakage of grout into the gravel pack or screen shall be provided.

501.6.2.7. PIT INSTALLATIONS. Pit installations are used where the casing terminates below the ground surface. Where well pits are used, such pits shall be maintained free of water at all times. The floor of the pit shall be a watertight reinforced concrete platform at least four (4) inches (10.16 cm) thick poured around the casing and shall be provided with a watertight seal. The floor of the pit shall extend at least two (2) feet (0.61 m) from the center of the casing in all directions. In all cases, the pit shall be sized to allow adequate working space. The casing shall extend above the floor for at least twelve (12) inches (30.48 cm). The surface of the floor shall be pitched toward a drain which has a minimum diameter of four (4) inches (10.16 cm) and discharged by gravity to the surface of the ground in an area not subject to flooding or to a basement which is effectively protected against flooding. Drain openings shall be effectively screened to prevent the entrance of insects and rodents. The drain shall not be connected to any sewer or other drain. The pit shall have watertight reinforced concrete walls four (4) inches (10.16 cm) thick or equivalent which provide for an effective watertight seal against the floor. The top of the pit shall be a watertight reinforced monolithic concrete slab at

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least four (4) inches (10.16 cm) thick, which shall be sealed with the wall so as to effectively prevent the entrance of water. The top of the pit shall not be more than six (6) inches (15.24 cm) below the ground surface. A durable watertight manhole shall be installed in the top of the pit centered over the casing and effectively sealed with the top to prevent the entrance of water. This manhole shall be at least twenty-four (24) inches (61 cm) in diameter. It shall extend at least three (3) inches (7.62 cm) above the surrounding ground surface and be covered by an impervious durable cover of concrete, steel, or equivalent material which overlaps the manhole vertically by at least two (2) inches (5.08 cm). The manhole cover shall be effectively secured to the manhole by bolting, locking or equivalent means, and shall be kept so secured. Pit

installations shall not be used in areas subject to flooding by ground or surface water or where the ground water level rises to within one (1) foot (.304 m) of the bottom of the proposed pit. Where pipes enter the pit, the annular space between the pipes and the wall shall be effectively sealed by a watertight permanent seal.

501.6.2.8. PITLESS INSTALLATIONS. Pitless installations are those installations where the casing terminates above the ground surface.

501.6.2.8.1. Where pitless installations are used, they shall be of a design which provides an effective seal against the entrance of ground or surface water into the well, access casing, and into the piping leading to the pump. All buried suction lines shall be effectively encased, or otherwise protected to prevent external damage or contamination. Pitless installations must be so designed as to be structurally sound and to provide for ready removal of drop piping without excavation. The access casing shall be effectively protected against corrosion and shall extend at least twelve (12) inches (30.48 cm) above the natural ground surface and to a point below the frost line. The ground level at this point shall be elevated above the adjacent ground level and graded to drain away in all directions. The top of the access shall be effectively sealed against the entrance of water, insects, and rodents. The pitless adaptor shall not be submerged in water or used in areas used by automobiles and other vehicles.

5-1.6.2.8.2. Where surface installations (i.e., hand pumps, pump rooms, etc.) are used a watertight reinforced concrete platform at least four (4) inches (10.16 cm) thick and extending for at least two (2) feet 0.61 m in all directions from the center of the casing shall be poured around the casing to provide an effective watertight seal with the casing, or shall be made watertight with an effective permanent seal. The surface of the platform shall slope to the edges. The casing shall extend through the slab for at least twelve (12) inches (30.48 cm) and shall be effectively sealed against the entrance of contamination. All pumping equipment shall be protected against freezing. If a pump room is proposed, it shall be so sized to allow adequate working space.

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501.6.2.9. VENTING. Where venting is required, an overlapping cover or pipe with the opening facing downward shall be required. Such venting shall be effectively protected against the entrance of insects and rodents. In no case shall openings be less than twelve (12) inches (30.48 cm) from the ground, or, in the case of pit installations, the floor.

501.6.2.10. WELL YIELDS (RESERVED)

501.7. GROUND WATER MONITORING WELLS. Due to the variability in the information to be obtained, ground water monitoring wells shall not be subject to strict compliance with sec. 501.6. of these regulations relating to water well construction. The construction of each monitoring well must first receive written approval of the Director. The design of each monitoring well must be such as to minimize potential contamination of the aquifer and to

maximize the information obtained from each monitoring well.

501.8. PUMPS AND OTHER EQUIPMENT:

501.8.1. Head Pump Installations.

501.8.1.1. The pump head shall be designed and constructed to prevent contamination from reaching the water chamber and other interior surfaces of the pump.

501.8.1.2. The pump shall be designed and constructed to provide an effective watertight seal with the well casing or stored water reservoir.

501.8.1.3. The pump cylinder or foot valve shall be installed below the pumping level of the well.

501.8.1.4. The pump shall be designed where necessary for protection against freezing.

501.8.2. Power Pump Installations.

501.8.2.1. The base of a power pump installed directly over a well casing or pipe sleeve shall be designed to provide an effective watertight seal with the casing or pipe sleeve.

501.8.2.2. All power pumps shall be installed on a firm base in an area free from flooding.

501.8.2.3. Where power pumps are installed in pits, the pits shall meet the requirements of Section 501.6.2.7. In addition, the pit shall be ventilated with a pipe of a diameter of at least one and one-half (1-1/2) inches (3.8 cm).

501.8.2.4. Location and installations of the pump and all related equipment shall permit convenient access, removal, maintenance and repair.

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501.8.2:5. The pump suction opening shall be placed at least two (2) feet (.62 m) below the maximum drawdown of the water in the well. However, the pump suction opening shall be placed at a sufficient distance from the bottom of the well so as to prevent agitation of accumulated sediment.

501.9. ABANDONED WATER SUPPLIES.

501.9.1. An abandoned well shall be filled and sealed by one (1) of the following methods in accordance with the geological formations penetrated, in such a manner as to prevent it from acting as a channel for pollution, or the escape of subterranean gases, and a report of the method of sealing shall be filed with the Director:

501.9.1.1. A well in unconsolidated deposits shall be filled with neat cement grout or concrete

grout.

501.9.1.2. The section of a well in a cavernous or creviced rock (such as cavernous limestone or basalt lava rock, creviced granite, etc.) shall be filled with concrete or neat cement grout or alternate layers of concrete or neat cement grout, gravel or stone aggregate. The filling shall be completed at the top by a layer of neat cement grout or concrete grout extending at least 20 feet (6.1 m) above the top of the cavernous rock or to the ground surface.

501.9.1.3. The section of a well in a sandstone strata shall be filled with neat cement grout, concrete grout or sand. The filling shall be completed at the top of the formation by a layer of neat cement grout or concrete grout extending at least 20 feet (6.1 m) above the top of the sandstone or to the ground surface.

501.9.1.4. The flow in a flowing well shall be confined and the well filled in accordance with preceding paragraphs or the well shall be sealed by pressure grouting.

501.9.1.5. Abandonment of wells containing subterranean gases requires special precautions and a casing in such a well shall be sealed with neat cement grout or concrete grout.

601.9.1.6. Debris or obstructions that may interfere with sealing operations shall be removed from the well.

501.10. DISINFECTION:

501.10.1. Following the completion of the construction of an individual, semi-public water or public supply and installation of the pumping equipment, or alterations, repair or maintenance work, the well shall be pumped continuously until the water discharged is clear. The well, pump, piping system, and other fixtures, shall be filled with water containing a concentration of not less than 100 parts per million of free chlorine. A portion of the chlorine solution shall be recirculated directly to the well in order to insure proper agitation. The water shall

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not be used for a period of twenty-four (24) hours. Other combinations of concentration and time intervals may be used as are demonstrated to be equally effective.

501.10.2. Disposal of the purged water shall be at a point so as to minimize adverse effects to aquatic life and further, the purged water shall not be discharged into any subsurface sewage disposal system. One ounce (28 g/0.8 kg) of dry calcium hypochlorite (70% available chlorine), dissolved in 52.5 gallons (200 l) of water, makes a 100 ppm strength disinfectant solution. Various proportions can be worked out using the approximate quantities shown in the following table:

Diameter of the Well Casing
Water Standing in Well

Amount of dry powder (HTH
or equivalent to make at least
100 ppm chlorine solution

4 inches
(10.16 cm)
100 feet (31 m)
(65.5 gallons) (247 l)
3 tablespoonsful or 1/4 cup
(36.7 g)

6 inches
(15.24 cm)
100 feet (31 m)
(147 gallons) (556 l)
7 tablespoonsful or 1/2 cup
(82.3 g)

8 inches
(18.32 cm)
100 feet (31 m)
(261 gallons) (988 l)
12 tablespoonsful or 3/4 cup
(146.2 g)

10 inches
(25.4 cm)
100 feet (31 m)
(408 gallons) (1554 l)
1- 1/4 cup
(228.5 g)

12 inches
(30.5 cm)
100 feet (31 m)
(587 gallons) (2222 l)
1 - 3/4 cup
(328.7 g)

501.11. CROSS CONNECTIONS. Every potable water distributing pipe shall be protected against cross connection with, and backflow from, any plumbing fixture or other piece of equipment or appliance capable of affecting the quality of the potable water by having the outlet end from which the water flows spaced a minimum distance of twice the diameter of the water supply pipe above the flood level rim of the receptacle into which the potable water flows, except:

501.11.1. Where it is not practicable to provide this minimum distance, the connection to the fixture, equipment, or appliance shall be equipped with a cross connection prevention assembly of a type and location approved by the Department.

501.11.2. For semi-public water supplies, the Department shall require a cross connection prevention device of a type and location approved by the Department be installed at any fixed potable water outlet to which a hose may be connected. This section shall apply to all semi-public water supplies constructed after the effective date of this section. Existing semi-public water supplies shall be subject to this requirement within one (1) year from the effective date of this section.

501.11.3 Public water systems shall comply with the requirements of the Pennsylvania Safe Drinking Water Act (35 P.S. 721.1 et. seq.).

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501.12. PERMIT PROCEDURE.

501.12.1. All water supplies, shall be constructed in strict compliance with the specifications set forth in this Section of these Rules and Regulations.

501.12.2. All water supplies constructed pursuant to these Rules and Regulations shall be constructed by a duly licensed well contractor or pump installation contractor who is licensed as set forth in this Section of the Rules and Regulations.

501.12.3. The installation, repair, or modification of a well, casing, well pit, pitless adaptor, well pump, or an individual water supply line constitutes the installation of a water supply or monitoring well and requires a permit prior to the beginning of the installation of a water supply system or of any building(s) for which such a system is to be installed. No Permit will be required for the installation of a water supply line that is connected to a public source, or for the repair or replacement of a well pump or for treatment processes in a public water system. Provided, however, that the disinfection procedures outlined in Paragraph 501.10. of this section shall be strictly adhered to.

501.12.4. The application for a permit to install a well must be made by a Chester County licensed well driller in the name of the real property owner to the Department. The application shall contain such information as the Department deems necessary including:

501.12.4.1. The information found in form CCHD-EHS-15.

501.12.4.2. Such further information as may be required by the Department to insure that the proposed construction complies with this section.

501.12.5. When the Department has found an application incomplete, or the Department is unable to verify the information submitted, the applicant shall be notified in writing within seven (7) days and the time for acting thereon shall be extended fifteen (15) days beyond the date of receipt of the supplementary or amendatory information.

501.12.6. When the Department is satisfied that the application is complete and the proposed design meets the requirements found in this section, a permit will be issued.

501.12.6.1. Permits shall be issued or denied within seven (7) days after receiving a completed application for a permit.

501.12.6.2. If construction or installation of a water supply and of any building or structure for which such water supply system is to be installed has not commenced within two years from the

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date of issuance of the permit said permit shall expire. A new permit shall be obtained prior to the commencement of said construction or installation.

501.12.7. A permit shall be revoked by the Department for any one or more of the following reasons, which shall be incorporated into a written revocation:

501.12.7.1. When any change has occurred in the physical conditions of any lands which will materially affect the operation of an individual or semi-public water supply.

501.12.7.2. When information material to the issuance of the permit has been falsified.

501.12.7.3. When the decision of the Department fails to conform with the provisions of the section, or:

501.12.7.4. When the permittee has violated the provisions of this section.

501.12.8. Upon receipt by the applicant of a notice of denial or revocation of a permit, the applicant may request a hearing in accordance with the provisions of S108, Chapter 100 of the Rules and Regulations of the Chester County Health Department.

501.12.9. No individual or semi-public water supply may be used and no structure served by an individual or semi-public water supply may be occupied unless the individual or semi-public water supply is first approved by the Department. Approval will be issued after submission of properly completed Form ER-TGS-15, and Form CCHD-EHS-15 and a satisfactory water

potability report. Approval to use the supply will be issued or denied within seven (7) days of receipt of the required information listed above. Public water systems may be used after receiving approval from the Pennsylvania Department of Environmental Resources.

501.12.10. If an emergency condition exists, that is, if the lack of water poses an immediate and significant danger to the health and welfare of persons, livestock or domestic fowl or crops, then the Department is authorized to issue an emergency well permit. The following procedure shall be used in obtaining an emergency well permit:

501.12.10.1. The well driller must telephone the Department and provide the necessary information for validation by the Department of the emergency.

501.12.10.2. Upon validation of the emergency by the Department, the Department is authorized to issue a verbal emergency permit number to the well driller.

501.12.10.3. The well driller must have in his possession the emergency well permit number during all subsequent emergency well drilling activities for that specific job site.

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501.12.10.4. The emergency well permit shall be void if the emergency well construction does not commence within 48 hours after the emergency permit issuance.

501.12.10.5. Within 72 hours after the start of construction of the emergency well, the well driller shall submit for the property owner, a completed water well permit application including the emergency well permit number.

501.13. WATER QUALITY.

501.13.1. Water quality for public water supplies shall be regulated by the Pennsylvania Safe Drinking Water Act, (35 P.S. 721.1 et. seq.).

501.13.2. Water quality for individual and semi-public water supplies shall conform with the following:

501.13.2.1. MICROBIOLOGICAL WATER QUALITY REQUIREMENTS:

Individual and semi-public water supplies shall conform with the maximum contaminant level for microbiological contaminants found in the Pennsylvania Safe Drinking Water Act (35 P.S.721.1 et. seq.). Procedures for testing for microbiological contaminants shall be approved by and conducted by a laboratory certified by the Commonwealth of Pennsylvania for the technique used. Evidence of such tests shall be given to the Chester County Health Department verifying that the tests have been conducted by a State or EPA approved laboratory.

501.13.2.2. PHYSICAL AND CHEMICAL WATER QUALITY CHARACTERISTICS THAT REQUIRE TREATMENT. Individual and semi-public water supplies must meet the following chemical and physical water quality standards. The presence of the said parameter in

excess of these limits shall constitute grounds for rejection of the supply by the Chester County Health Department as well as render the owner of the supply amenable to the penalty provisions of this chapter.

- 501.13.2.2.1: turbidity 5 NTU
- 501.13.2.2.2. PH* 6.7 to 8.5
- 501.13.2.2.3. nitrates+nitrites 10 mg/l as N

* The lower limit for pH may be waived if the water is conveyed in plastic pipe approved by the National Sanitation Foundation. Where prescribed the analysis must be conducted in accordance with, and be conducted by a laboratory approved by, the Commonwealth of Pennsylvania, Department of Environmental Resources.

501.13.2.3. PHYSICAL AND CHEMICAL WATER QUALITY CHARACTERISTICS NOT REQUIRING TREATMENT.

501.13.2.3.1. Individual and semi-public water supplies must be analyzed for the following water quality parameters. However, the Department will not require treatment of an individual or

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semi-public water supply if the water quality exceeds the following MCL's:

- Iron 0.3 mg/l
- Manganese 0.05 mg/l
- Chloride 250.0 mg/l
- Color 5 units
- MBAS 0.5 mg/l
- Odor 5 units

501.13.2.3.2. Where any of the above listed chemical and physical parameters are also regulated by the Pennsylvania Safe Drinking Water Act, the water quality analysis must be conducted in accordance with the procedures and by a laboratory approved by the Commonwealth of Pennsylvania, Department of Environmental Resources.

501.13.2.3.3. For either individual or semi-public water supplies, additional analyses of the water may be required if the Department has reason to suspect that harmful substances are present in the water in amounts that are significantly adverse to human health, safety, or comfort.

501.14. Accessibility To Public Water. No individual or semi-public water supply shall be used, constructed, or maintained where a public water supply pipe is within 150 feet of the structure to be served by water, and where the structure to be served by water is located within the franchise area of the water supplier.

Approved by the Chester County Board of Health 3/31/87

Approved by the Chester County Commissioners 4/28/87

Effective 5/18/87