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Description of Organization, Rules of Practice, and Regulations for the Well Drilling Industry

Secs. 25-128-1—25-128-32.

Repealed, May 21, 1993.

Sec. 25-128-33. Title of regulations

These regulations, together with the regulatory provisions of Chapter 482 of the General Statutes, and the section of the Public Health Code relating to wells, shall be collectively known as the Connecticut Well Drilling Code.

(Effective September 27, 1978)

Sec. 25-128-34. Purpose of regulations

The purpose of the regulations shall be to govern the construction, repair, development, and abandonment of wells, in order to safeguard the public health and to provide an adequate supply of clean and uncontaminated water for all persons in the state of Connecticut.

(Effective May 21, 1993)

Sec. 25-128-35. Scope of regulations

(a) **Well Contractors and Drillers.** The regulations shall apply to any person who engages in the industry, procedures, or operation, full time or part-time, for compensation or otherwise, of obtaining water from a well or wells by drilling, or other methods. A well drilling contractor is any person regularly offering to the general public the services of his employees or himself in the industry of obtaining water from a well for any purpose or use.

(b) **Abandoned wells.** The regulations shall apply to any person who abandons and permanently discontinues the use of a well, or to any person who is responsible by law for the abandonment of a well except as provided by Section 25-134 of the General Statutes.

(c) **Special exception for farmers.** The regulations shall not require a person who constructs a well on his own or leased property, intended for use only for farming purposes on his farm, to obtain a certificate of registration or a permit, as provided by Section 25-132 of the General Statutes.

(d) **Well development.** The regulations shall apply to any person who performs work on a well for the purpose of increasing the yield of a well or otherwise improving the quality or quantity of water that might be obtained from the well.

(e) **Non water-supply wells.** Pursuant to Section 25-133 of the General Statutes, non water-supply wells are exempt from these regulations except for sections 25-128-35, 25-128-58b, and 25-128-60b. Non water-supply wells shall be constructed according to the public health code, and any and all municipal ordinances. For the purposes of these regulations the term “non water-supply well” includes piezometers, containment recovery wells and monitor wells.

(Effective May 21, 1993)

Sec. 25-128-36. Definitions

(a) Unless expressly stated otherwise, the following terms shall, for the purpose of the Connecticut Well Drilling Code, have the meanings indicated in this section.

(b) Words used in the present tense include the future; words used in the masculine gender include the feminine and neuter; the singular number includes the plural and the singular.

(c) Where the terms are not defined in this section or in Section 25-126 of the General Statutes, they shall have their ordinarily accepted meanings or such as the context may imply.

(1) Access port: A suitable opening into the well to allow measurement of water level.

(2) Annular space: The space between two objects, one of which is surrounded by the other. This includes the space between the wall of an excavation and the wall of a pit; between the wall of an excavation and the casing of a well; or between two casings.

(3) Aquifer: A water bearing earth material which can transmit water in significant quantity. It can be either consolidated rock, such as ledge rock, or unconsolidated material, such as sand, gravel, or soil with boulders.

(4) Artesian well: A well in which static water level rises above the top of the aquifer. The aquifer is confined by an impermeable geologic formation overlying the aquifer.

(5) Bentonite clay grout: A mixture of bentonite clay and water with not less than two pounds of bentonite clay for every gallon of water.

(6) Board: The State Plumbing and Piping Work Examining Board.

(7) Casing: A pipe placed in a well to prevent the walls from caving, or to seal off surface drainage and other contaminants, so that they cannot enter the well.

(8) Construction of well: All acts necessary to construct or repair wells for any intended purpose of use, including the location and excavation of the well, placement of casings, screens, and fittings, and well development and testing.

(9) Contamination: The act of introducing into water, foreign materials of such nature, quality, and quantity as to cause degradation of the quality of the water.

(10) Disinfection: The inactivation of harmful organisms present in water, through use of an accepted chlorine solution or other accepted disinfection material or procedure.

(11) Drawdown: The extent of lowering of the water table or piezometric surface within or adjacent to the well, resulting from the discharge of water from the well. Draw down is measured between the static water level and the pumping water level. The quantity of water available in the well from the static water level to the pump intake is known as the draw down available.

(12) Established ground surface: The permanent elevation of the surface of the ground at the site of the well after completion of grading, excavation; or other land movements.

(13) Ground water: Water encountered below the ground surface of the earth within the zone of saturation that can supply wells and springs.

(14) Grout or grouting material: A low permeability material placed in the annular space between the casing and the formation or within the borehole which is at least impermeable as the soil formation. The purpose of the grout is to resist the migration of pollutants into the annular space.

(15) Cement grouts: A mixture of portland cement, sand, and water. The mixture is usually composed of one bag of portland cement weighing ninety-four (94) pounds, an equal volume of dry sand, and five to six gallons of water.

(A) Neat cement grout: A mixture of not more than six gallons of clear water to one bag of portland cement.

(B) Sand cement grout: A mixture of not more than two parts sand to one part portland cement, and not more than six gallons of clear water to each bag of cement.

(C) Concrete grout: A mixture of portland cement, sand, gravel and water.

(D) Bentonite grout: mined processed bentonite clay.

(E) Bentonite cement grout: A mixture of cement grout or sand cement grout with approximately ten per cent (10%) bentonite added to reduce shrinkage.

(F) Natural grout: A mixture of water and natural materials excavated during drilling of the well. The materials shall be placed by whatever techniques are effective for the existing conditions to achieve maximum density, strength, and impermeability of the fill material.

(G) Sand clay grout: A mixture of bentonite clay and sand in equal proportions.

(16) Flowing artesian well: A well in which the static water level is higher than the top of the casing and water flows from the well.

(17) 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 entrances to the well and to the building, establishing seals, installing pump piping, valves, wiring, electrical controls and tanks.

(18) Liner pipe: Pipe that is installed inside a completed and cased well for the purpose of sealing off undesirable water or for repairing ruptured or punctured casing or screens. The liner pipe and screens may be constructed of PVC schedule forty (40) plastic.

(19) Owner: Any person or his agent who holds the title or other rights of property where a well is constructed, repaired, or abandoned.

(20) Potable water: Water free from impurities in amounts sufficient to cause disease or other harmful physiological effects, with the minimum or maximum bacteriological, physical, and chemical composition as defined by the applicable laws and regulations of the Department of Health Services.

(21) Repair: Any work involved in the reaming, sealing, installing, changing of casing depths, perforating, screening, cleaning, acidizing, surging, hydrofracturing or other redevelopment of a well.

(22) Specific capacity: The yield of a well expressed in gallons per minute per foot of drawdown, as abbreviated "gpm/ft."

(23) Static water level: The depth to the surface of the water in a well measured from the land surface or other convenient, permanent, and specified datum, when no water is being discharged from the well and the water level has reached equilibrium.

(24) Water well: An artificial excavation or opening in the ground, by which ground water can be obtained or through which it flows under natural pressure or is artificially withdrawn.

(a) Well bored or augered: Any excavation made for water, or in exploration for water, using power driven equipment, where the drill consists of a continuous spiral of metal or a hollow cylinder or bucket attached to a shaft, and where the excavated material is brought to the ground service by upward movement along the surface of the spiral or removed by the bucket.

(b) Well gravel: A well constructed into unconsolidated material. In the zone immediately surrounding the well screen more permeability is obtained by hydraulic action or by removing the finer formation material and replacing it with artificially graded coarser material.

(c) Well drilled rock: A well drilled into consolidated rock in which that portion of the well drilled into the overlying unconsolidated material is supported by a casing.

(d) Well dug: A well excavated into a shallow aquifer.

(e) Well monitor: A well constructed for the purpose of aquifer testing, obtaining samples of ground water quality and/or measurement of ground water level.

(25) Well-seal: An approved arrangement or device used to cap a well or to establish and maintain a junction between the casing or curbing of a well and the pipe or equipment installed therein, the purpose or function of which is to prevent contaminants from entering a well at the upper terminal.

(26) Well vent: An outlet at the upper terminal of a well casing to allow equalization of air pressure in a well but at the same time so constructed as to avoid entry of water and foreign material into the well.

(27) Well yield: The quantity of water per unit of time which may flow or be pumped continuously from a well.

(28) Well hydrofracturing: A method of well development used to improve the specific capacity of new or existing drilled wells. Certain zones within the well are pressurized in excess of one hundred (100) psi with water in an effort to force open fractures in the bedrock.

(29) Well abandonment: Actions taken to ensure that a well which is no longer in use shall not be a source or conduit for contamination of ground water resources.

(30) Well contractor: A well drilling contractor is any person regularly offering to the general public the services of his employees or himself in the industry of obtaining water from a well for any purpose or use.

(31) Master well driller: A master well driller is any person experienced and skilled in the industry of obtaining water from a well for any purpose or use.

(Effective May 21, 1993)

Sec. 25-128-37. Manner of construction

The construction of any well shall be planned and carried out in a manner to guard against waste and contamination of ground water resources.

(Effective September 27, 1978)

Sec. 25-128-38. Application of public health code

The regulations for the construction of wells, as provided herein, shall be construed in a manner consistent with the provisions of Sections 19-13-B51 to 19-13-B51m, inclusive, of the Public Health Code. In the event any conflict shall appear, the interpretation of the regulations shall be made which affords the greater protection of the public health.

(Effective September 27, 1978)

Sec. 25-128-39. Adequate relations of diameter, depth, and yield

Wells shall be of adequate diameter and depth to be capable of yielding the quantity of water required by the user. For the use of an individual household, a bedrock well of six (6) inches in diameter shall be satisfactory when it is capable of yielding:

(a) five (5) gallons per minute and has a storage available of seventy-five (75) gallons or has a water column depth of one hundred (100) feet, whichever is greater;

(b) three and one half (3 1/2) gallons per minute and has a storage available of one hundred fifty (150) gallons or has a water column depth of one hundred fifty (150) feet, whichever is greater;

(c) two gallons (2) per minute and has a storage available of two hundred twenty-five (225) gallons or has a water column depth of two hundred (200) feet, whichever is greater;

(d) one gallon per minute and has a storage available of four hundred (400) gallons or has a water column depth of three hundred seventy-five (375) feet, whichever is greater;

(e) one half (1/2) gallon per minute and has a water column depth of four hundred fifty (450) feet or has a storage available of six hundred (600) gallons, whichever is greater.

(f) storage may be provided using combinations of hydropneumatic tanks and/or non-pressurized tanks with booster pumps.

(g) wells yielding less than one half (1/2) gallons per minute shall be pump tested for at least eighteen hours (18) to prove the well yield. It is not recommended that a well with less than one half (1/2) gallon be used as the only supply for an individual household.

In the event, however, that in the opinion of the Board, special or unusual geological, hydrological, or other circumstances shall exist in the construction of any well, the Board may determine the minimum requirements of diameter, depth, and yield for the well.

(Effective May 21, 1993)

Sec. 25-128-40. Pumps and pumping equipment

(a) Pumps and pumping equipment shall be installed in the well to make the most efficient use of well storage.

(b) Pumps and pumping equipment shall be located to permit convenient access for inspection, maintenance and repair.

(c) In the event the base plate of a pump is placed directly over the well, the base plate shall be of a type designed to form a watertight seal with the well casing or pump foundation, as provided by Section 19-13-B51j of the Public Health Code.

(d) The well shall be properly vented at the well head to allow for pressure changes within the well.

(e) The electrical wiring used in connection with the pump shall conform to specifications of the State Basic Building Code.

(f) Contaminated water shall not be used for the purpose of priming any pump.

(Effective May 21, 1993)

Sec. 25-128-41. Location and protection of wells

The location of any well upon premises shall be subject to approval by the local health officer of the municipality in which the said premises are located, and shall be as provided by Section 19-13c of the General Statutes, and by Sections 19-13-B50 to 19-13-B51, inclusive, of the Public Health Code.

(Effective September 27, 1978)

Sec. 25-128-42. Drilling, general

(a) The well shall be so constructed that a pump of capacity equal to the desired yield can be installed and operated for different yields.

(b) Any water used shall be disinfected or of drinking water quality.

(c) Any chemicals or other additives used in drilling shall be cleaned out from the well.

(d) Rock cuttings shall be cleaned out of the well.

(e) The well shall be tested as provided by Section 19-13-B51 of the Public Health Code.

(f) The well driller shall prepare and maintain a log on forms supplied by the Board, and shall submit copies of the log to the Board and to the owner or owners of the well, respectively. The log shall clearly identify the location of the well upon the premises.

(g) Well development shall be performed only by properly registered persons.

(h) Subcontracted work shall be performed only by properly registered persons.

(i) No solder containing more than 0.2 per cent lead shall be used in making joints and fittings in any public or private potable water supply system or any water user's pipelines.

(Effective May 21, 1993)

Sec. 25-128-43. Casing of drilled wells

(a) The bottom end of the primary casing shall be equipped with a hardened drive shoe of the appropriate size.

(b) The casing shall extend at least six (6) inches above the land surface. Annular space shall be grout filled from the frost level to the bottom of the casing, except that, where special or unusual conditions exist, the annular space shall be grout filled from the frost level to a distance of at least ten (10) feet below the land surface.

(c) Upon completion of the well unit and until such time as the well is equipped with a pump, the top of the casing shall be a metal cap fixed to prevent unwaranted access.

(d) The primary casing shall be new steel and shall be free of pits, breaks, or other serious imperfections. All casing pipes and couplings used shall have minimum weights and wall thicknesses per diameter, as specified in Table 1.

(e) In the event casing pipes are assembled together, they shall be joined by means of watertight welded joints, screw coupling joints, or slip joints. In the use of welded joints, the weld shall be at least as thick as the wall thickness of the well casing.

(f) In the event the diameter of a casing is reduced at any point along its length, the annular space between the larger and smaller casings shall be made watertight.

(Effective May 21, 1993)

Sec. 25-128-44. Length of casing, drilled wells

A twenty (20) foot minimum length of casing pipe shall be required in the construction of any drilled well, subject to the following exceptions for specific, geological and hydrological conditions:

(a) All unconsolidated overburden and other loose, caving zones shall be cased.

(b) The casing pipe shall extend at least five (5) feet into the bedrock, as shown by Figure 1.

(c) In the event, however, that the overburden or the upper five (5) feet of the bedrock constitute the primary potable water producing zones, the requirement of length of subsection (b) shall not apply.

(d) In the condition of the presence of caving zones, the casing pipe or other adequate protective seal shall extend as great a distance below the caving zone as the driller deems necessary to insure well stability.

(e) In the event geological conditions require telescoping of the casing pipe and the use of linear pipe, the respective lengths and diameters necessary to accomplish effective drilling shall be used, the annular spaces shall be made watertight where appropriate to prevent the travel of contaminants.

(Effective May 21, 1993)

Sec. 25-128-45. Length of casing, gravel wells

(a) The length of the casing in a gravel well shall be such that the pumping level does not drop below the top of the screen.

(b) In conditions of aquifers alternated with silt clay and other undesirable zones, the casing shall extend at least two (2) feet into the aquifer underlying the cased zones, as shown by figure 2.

(c) In conditions of aquifer overlain by layers of clay, silt, fine sand, or any other sand that cannot be developed for ground water, the casing pipe shall extend at least five (5) feet into the aquifer. But if the aquifer thickness is less than five (5) feet, the casing shall extend into the aquifer as much as feasible to serve the general purpose of casing, as shown by Figure 3.

(d) In conditions of aquifer overlain by till, the casing pipe shall extend at least five (5) feet below the bottom of the till. But if the aquifer is less than five (5) feet thick, the casing shall extend into the aquifer as much as feasible to serve the general purpose of casing, as shown by Figure 4.

(e) In conditions of aquifer overlain by clay, the casing shall extend at least five (5) feet below the bottom of the clay. But if the aquifer is less than five (5) feet thick, the casing shall extend into the aquifer as much as feasible to serve the general purpose of casing, as shown by Figure 5.

(f) In conditions of aquifer overlain by unconsolidated material without clay beds, the length of the casing shall be such that the pumping water levels do not drop below the top of the screen.

(g) In the event the aquifer consists of very coarse gravel and no screen is used, the casing pipe shall extend into the aquifer as much as feasible to develop the required quantity of water.

(Effective May 21, 1993)

Sec. 25-128-46. Well screens

(a) Any well constructed to obtain water from an unconsolidated formation may be equipped with a screen, for the purpose of preventing the entrance of formation material into the well after the well has been developed and completed.

(b) The well screen shall: (1) be of a standard design and manufacture, for the specific purpose of well construction; (2) be made of material adequate to withstand normal physical and chemical forces, applied to it during and after installation; (3) shall have openings free of rough edges, irregularities, or other defects that may contribute to corrosion or clogging; and (4) shall be provided with such fittings as are necessary to seal the top of the screen to the casing and to close the bottom.

(c) Any well constructed in very coarse gravel shall not, however, be required to have a screen; or, if a screen is used, the bottom may be left open.

(d) Any well constructed with multiple screens shall not connect aquifers or zones which have differences in water quality, classification or which maintain different piezometric surfaces.

(Effective May 21, 1993)

Sec. 25-128-47. Gravel packed wells, gravel

(a) The gravel in a gravel packed well shall be composed of material that does not react chemically with the water in the well, and will not create or enhance encrustation or corrosion.

(b) The gravel shall be clean, rounded, uniform, water-washed, and free from clay, silt, or other deleterious substance.

(c) The size of the gravel shall be as determined by a grain size analysis of the formation material.

(d) The gravel shall be disinfected by adding sufficient chlorine to the placement fluid to produce a chlorine residual of approximately one hundred parts per million (100 ppm).

(e) The gravel shall be placed in such a manner that no bridging or layering occurs.

(f) The gravel pack shall not connect aquifers or zones which have differences in water quality classification or in static water levels.

(Effective May 21, 1993)

Sec. 25-128-48. Gravel packed wells, construction

In a gravel packed well in which the top of the gravel does not extend inside the outer casing, a cement grout plug of at least five (5) feet in thickness shall be placed in the annular space directly on top of the gravel. The remaining space shall be filled with grout except that the upper ten (10) feet below the frost level shall be filled with cement grout. Centering guides shall be attached to pipe extensions about the well screen and to blank pipes separating different screened sections. The gravel filled pipes shall be properly capped.

(Effective May 21, 1993)

Sec. 25-128-48a. Annular space

(a) Any annular space between the outside of the casing and the natural materials penetrated by the well shall be filled with suitable material to make this space as impervious to the movement of fluids and competent to support the casing as are the natural materials surrounding the well. The driller may fill the annular space with the natural materials excavated during the drilling of the well to meet the following requirements:

(1) the annular space shall be fitted as completely as possible from the bottom of the casing to the land surface without any depressions, voids, holes or channels;

(2) the driller shall employ whatever techniques are effective for the existing conditions to achieve maximum density, strength and impermeability of the fill material; and

(3) the surface of the fill material shall be sloped away from the casing.

(b) In cases where potentially contaminating or corrosive fluids are encountered, or impermeable natural materials cannot be adequately placed and compacted to where geologic conditions or the isolation distance may not be adequate, the annular space shall be grouted for the full length of the casing, or the portion thereof below the frost line or pitless adaptor, so that no fluids may move in the zone needing to be grouted.

(Effective May 21, 1993)

Sec. 25-128-49. Well head completion and equipment

The completion of the well head and the equipment used shall be as follows:

(a) The top of the casing shall be cut off reasonably smooth and level.

(b) In the event the well head is enclosed, the enclosure shall be adequately drained. In the event a well pit is used, it shall be drained in the manner provided by Section 19-13-B51 of the Public Health Code.

(c) All water piping shall be protected against freezing.

(d) The well shall be equipped with a tightly fixed vented cap or a sanitary seal with an access port for ventilation. The access port shall have a minimum, inside diameter of one quarter (1/4) inch. It shall be installed and maintained in such a manner as to prevent the entrance of water, dust, insects, or other foreign material, and to permit ready access for the purpose of water level measurement.

(Effective May 21, 1993)

Sec. 25-128-50. Plumbness and alignment of wells

All gravel packed wells, and all wells equipped with pumps having vertical shafts that require plumbed and aligned walls, shall be tested for plumbness and alignment in accordance with standards of the American Water Works Association.

(Effective September 27, 1978)

Sec. 25-128-51. Tests of yield

All water supply wells shall be tested for yield and capacity, as provided by Section 19-13-B51 K (b) of the Public Health Code, and all static and pumping water levels and well discharge shall be measured and recorded, with the pumping rate held constant. The test shall be made by one of the following methods: the pump method, the bailer-recovery method, the air rotary drill method, or the air lift method. For wells serving a single family the well may be tested for yield by removing as much water as is practicable from the well and measuring the rate of recovery.

(Effective May 21, 1993)

Sec. 25-128-52. Disinfection of wells

All wells shall be disinfected by chlorination as provided by Section 19-13-B 51 K (c) of the Public Health Code.

(Effective September 27, 1978)

Sec. 25-128-53. Construction of non-water supply wells

All wells used for other purposes than the supply of water for human consumption shall be constructed, repaired, and maintained in such a manner that they are not a source or cause of ground water contamination.

(Effective September 27, 1978)

Sec. 25-128-54. Maintenance and repair of wells and pumping equipment

All wells shall be maintained in a proper condition to conserve and protect ground water resources, and shall not be a source or cause of contamination or pollution of the water supply of any aquifer. All materials and construction practices used in the maintenance, repair, or replacement of any well shall be the same as those required for the construction of a new well. All maintenance, repair, hydrofracturing, developing, and replacement work shall be done only by a registered well driller, or by a licensed plumber or electrician, as provided by Section 25-129 of the General Statutes, and Articles 5 and 6 of the regulations.

(Effective May 21, 1993)

Sec. 25-128-55. Promulgation of construction standards

The regulations for the construction, maintenance, and repair of wells, as provided herein shall be promulgated in cooperation with the State Department of Health Services and the Department of Environmental Protection.

(Effective September 27, 1978)

Sec. 25-128-55a. Period of responsibility

The well drilling contractor shall be responsible for a period of one (1) year from the date of completion of work performed on the well to insure that the physical construction of the well meets the requirements of this code. The contractor shall not be responsible if work has been performed on the well by others, or if activities by others in the vicinity of the well have adversely affected the well.

(Effective May 21, 1993)

Sec. 25-128-56. Abandonment of wells, responsibility

Any well that is abandoned shall not be a source or cause of contamination or pollution of ground water resources. Abandonment procedures shall be performed or directed only by a registered well driller. The registered well drilling contractor who performs the work of abandonment shall be responsible for compliance with the procedure of abandonment of the well, as provided in this part and shall notify the local health authority of the abandonment of the well.

(Effective May 21, 1993)

Sec. 25-128-57. Procedure of abandonment

In the event of abandonment of any water well or other type of well the proper procedure and materials shall be used as follows:

(a) The well shall be plugged to prevent the entrance of surface water, circulation of water between or among producing zones, or any other process resulting in the contamination or pollution of ground water resources.

(b) In the event of temporary abandonment or discontinuance of the use of any well, the well shall be sealed with a watertight cap or seal, as provided by Section 25-128-42 (c).

(c) The well shall be chlorinated prior to abandonment using a chlorine solution with a minimum concentration of one hundred fifty parts per million (150 ppm) of chlorine. This is equivalent to 5.5 quarts of bleach at 2.25% available chlorine to five hundred (500) gallons of water or three hundred thirty-three (333) feet of six (6) inch diameter well.

(d) The well shall be checked from land surface to the entire depth of the well before it is sealed, to insure against the presence of any obstruction that will interfere with sealing operations.

(e) The well bore shall be filled and sealed with any of the following materials: heat cement grout, sand cement grout, bentonite clay grout, or sand clay or bentonite cement grout.

(f) The grout material shall be placed in such a way to prevent voids in the grout or dilution of the grout.

(g) Any well constructed in a consolidated rock formation, may be filled with fine sand in the zone or zones of consolidated rock. The top of the sand fill shall be at least ten (10) feet below the bottom of the casing, and the remaining portions of the well shall be filled with any of the materials specified in subsection (e).

(h) Any test well or bore shall be abandoned in such a manner that it does not become a channel for the vertical movement of water or other substance to the potable ground water resources.

(i) Deep waste disposal or oil wells with casings free of any breaks, and extending below the potable ground water zones, may be sealed with a watertight cap or welded plate.

(j) Upon completion of abandonment of the well, the top of the casing or grout material may be terminated at least four (4) feet below the ground surface.

(Effective May 21, 1993)

Sec. 25-128-58.

Repealed, May 21, 1993.

Sec. 25-128-58a. Contractor-limited to well water-supply drilling W-1

As provided by Section 25-129 of the General Statutes, the Board hereby establishes certain requirements for the registration of well drilling contractors. This

registration permits the registrant to construct a well, including but not limited to, the installation, repair and maintenance of pumps, pump motors, pump piping, valves, wiring, electric controls and tanks. Before any registration is issued to any individual the Board shall require that the applicant submit:

- (1) His full, legal name, street address, city, state and zip code;
 - (2) A certificate of liability insurance specifying well drilling purposes and providing liability coverage for bodily injury of at least one hundred thousand dollars (\$100,000) per person with an aggregate of at least three hundred thousand dollars (\$300,000), and for property damage of at least fifty thousand dollars (\$50,000) per accident with an aggregate of at least one hundred thousand dollars (\$100,000);
 - (3) Documentation that he has been actively engaged in the well drilling trade as a well driller for a period of thirty-six (36) months prior to the date of his application and/or has held a valid W-2 registration for at least two years;
 - (4) The name(s) and address(es) of his employee(s) who holds a master driller registration;
 - (5) Letters of references from a Connecticut registered well contractor, a local public health official and one (1) other responsible citizen which attest to the applicant's integrity and ability to act as a well driller; and
 - (6) He shall be found in compliance with all provisions of subsection (e) (1) of section 25-129 of the General Statutes, concerning his conduct in the well drilling industry.
- (Effective May 21, 1993)

Sec. 25-128-58b. Contractor-limited to well non water-supply drilling W-3

As provided by Section 25-129 of the General Statutes, the Board hereby establishes certain requirements for the registration of well drilling contractors. This registration permits the registrant to construct a well, including but not limited to, the installation, repair and maintenance of pumps, pump motors, pump piping, valves, wiring, electric controls and tanks. Before any registration is issued to any individual the Board shall require that the applicant submit:

- (1) His full, legal name, street address, city, state and zip code;
 - (2) A certificate of liability insurance specifying well drilling purposes and providing liability coverage for bodily injury of at least one hundred thousand dollars (\$100,000) per person with an aggregate of at least three hundred thousand dollars (\$300,000), and for property damage of at least fifty thousand dollars (\$50,000) per accident with an aggregate of at least one hundred thousand dollars (\$100,000);
 - (3) Documentation that he has been actively engaged in the well drilling trade as a well driller for a period of thirty-six (36) months prior to the date of his application and/or has held a valid W-4 registration for at least two years;
 - (4) The name(s) and address(es) of his employee(s) who holds a master driller registration;
 - (5) Letters of references from a Connecticut registered well contractor, a local public health official and one (1) other responsible citizen which attest to the applicant's integrity and ability to act as a well driller; and
 - (6) He shall be found in compliance with all provisions of subsection (e) (1) of section 25-129 of the General Statutes, concerning his conduct in the well drilling industry.
- (Effective May 21, 1993)

Secs. 25-128-59—25-128-60.

Repealed, May 21, 1993.

Sec. 25-128-60a. Well driller - limited to well water-supply drilling (W-2)

The requirements for this registration shall be three (3) years as an apprentice driller or possesses equivalent experience and training. This registration permits the registrant to construct a well, including but not limited to, the installation, repair and maintenance of pumps, pump motors, pump piping, valves, wiring, electric controls and tanks only while the registrant is in the direct and regular employment of a contractor registered for such work. The applicant shall demonstrate his knowledge of well drilling by passing a written examination conducted pursuant to Sections 21a-7 (1) and 21a-8 (5) of the General Statutes.

(Effective May 21, 1993)

Sec. 25-128-60b. Well driller - limited to well non-water-supply drilling W-4.

The requirements for this registration shall be three (3) years as an apprentice driller or possess equivalent experience and training. This registration permits the registrant to construct a well, including but not limited to, the installation, repair and maintenance of pumps, pump motors, pump piping, valves, wiring, electric controls and tanks only while the registrant is in the direct and regular employment of a contractor registered for such work. The applicant shall demonstrate his knowledge of well drilling by passing a written examination conducted pursuant to Sections 21a-7 (1) and 21a-8 (5) of the General Statutes.

(Effective May 21, 1993)

Sec. 25-128-61. Permit requirement

(a) Before commencing work on the construction, repair, development, hydrofracturing or abandonment of any well, a registered well contractor shall apply to the Board for a permit, as provided by Section 25-130 of the General Statutes. The applicant shall be required to agree by his signed, written oath that all work under the permit shall be done in strict compliance with the Connecticut Well Drilling Code, unless a special exemption from one or more of the regulations of the Board has been granted.

(b) The contractor shall then submit the completed, signed permit application with the proper fee to the local director of health or his agent who shall approve such permit if said proposed well conforms to the public health code. No well shall be drilled until such a permit has been issued and approved.

(c) Water supply well permits shall be evaluated according to their content with regard to proper separating distances as outlined in the public health code.

(Effective May 21, 1993)

Sec. 25-128-62. Contents of permit application

The application for a permit by a registered well driller shall include an appropriate map or plot plan, showing the location of the proposed well and the premises on which the well is located, in relation to roads, intersections, and other permanent land features. All permit applications shall be signed by a master driller, as representative of the registered well-drilling contractor.

(Effective September 27, 1978)

Sec. 25-128-63. Exemption from construction standards

As provided by Section 25-133 of the General Statutes, as amended, where the Board finds that compliance with the regulations and construction standards adopted herein would result in undue hardship, an exemption from any one or more of the standards may be granted by the Board to the extent necessary to ameliorate such

undue hardship, and to the extent such exemption can be granted without impairing the intent and purpose of the regulations. An application for a special exemption shall be made at the office of the Board, and shall be in writing on a form to be supplied by the Board. The application shall include all information regarding circumstances and conditions of construction of the well as the Board deems necessary. The decision of the Board to grant or deny the exemption requested, in whole or in part, shall be made within thirty (30) days, and the Board shall notify the applicant by certified mail of its decision.

(Effective September 27, 1978)

Sec. 25-128-64. Emergency permits

Notwithstanding any provision of this article, the Board may grant a permit for the construction, repair, or abandonment of any well by its informal, verbal authorization, if it determines that an emergency situation exists with respect to the necessity for the construction, repair, or abandonment of the well. The well drilling contractor shall also obtain the approval of the local director of health or his agent, for the work intended to be done. Within a reasonable time after giving its authorization, the Board shall require that a written application for a permit, and, if necessary, a written application for a special exemption shall be made, in compliance with the provisions of this article and Sections 25-130 and 25-133 of the General Statutes. In the event the formal application for the permit or exemption is refused, the well drilling contractor shall, upon written notification by the Board, immediately cease all work on the well.

(Effective September 27, 1978)

Table 1
CASING PIPE WEIGHTS AND DIMENSIONS

Size In Inches	Wt. Lbs. Per Ft. Threads and Couplings	Pipe			Threads per Inch	Couplings	
		Thickness in Inches	Diameter-Inches			Length in Inches	External Diameter Inches
			External	Internal			
1--	1.68	.133	1.315	1.049	11 1/2	1 7/8	1.556
1 1/4	2.28	.140	1.660	1.380	11 1/2	2 1/8	1.907
1 1/2	2.73	.145	1.950	1.610	11 1/2	2 3/8	2.218
2	3.68	.154	2.375	2.067	11 1/2	2 5/8	2.760
2 1/2	5.82	.203	2.875	2.469	8	2 7/8	3.276
3	7.62	.216	3.500	3.068	8	3 1/8	3.948
3 1/2	9.20	.226	4.000	3.548	8	3 5/8	4.531
4	10.89	.237	4.500	4.026	8	3 5/8	5.091
4 1/2	12.64	.247	5.000	4.506	8	4 1/8	5.591
5	14.81	.258	5.563	5.047	8	4 1/8	6.296
*6	19.18	.280	6.625	6.065	8	4 1/8	7.358
7	23.769	.301	7.625	7.023	8	4 1/8	8.358
8	25.00	.277	8.625	8.071	8	4 5/8	9.420
10	35.00	.307	10.750	10.136	8	6 1/8	11.721
12	45.00	.330	12.750	12.090	8	6 1/8	13.958
14 00	57.00	.375	14.000	13.250	8	7 1/8	15.446
15 00	61.15	.375	15.000	14.250	8	7 1/8	16.446
16 00	65.30	.375	16.000	15.250	8	7 1/8	17.446
17 00	73.20	.375	17.000	16.250	8	7 1/8	18.683
18 00	81.20	.375	18.000	17.250	8	7 1/8	19.921
20 00	90.00	.375	20.000	19.250	8	7 5/8	21.706

*6 17.00 .250 6.625 6.375 (also acceptable)

FIG. 1 CONSTRUCTION OF BEDROCK WELLS

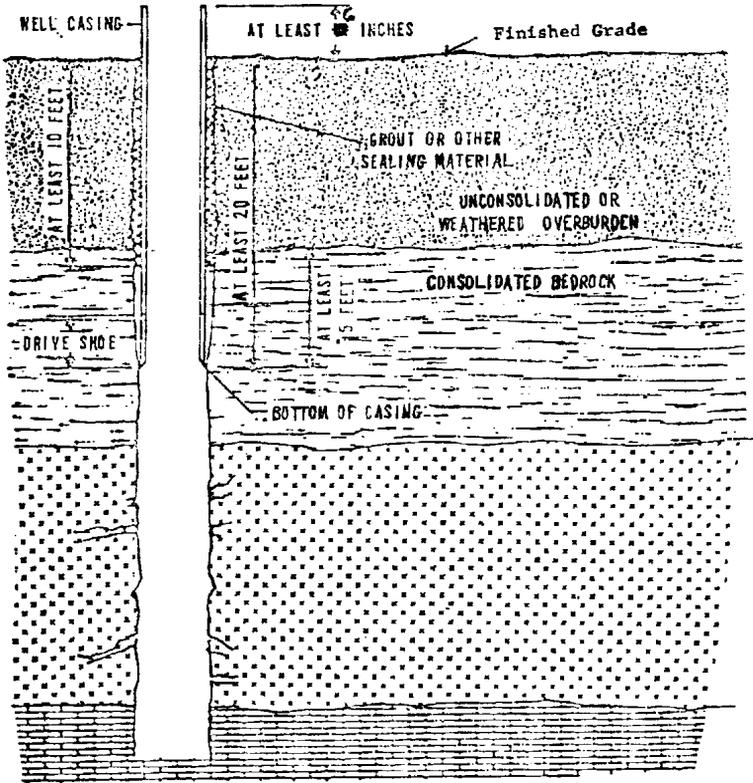


FIG. 2 CONSTRUCTION OF WELLS IN AQUIFERS WITH ALTERNATING BEDS OF SILT AND CLAY

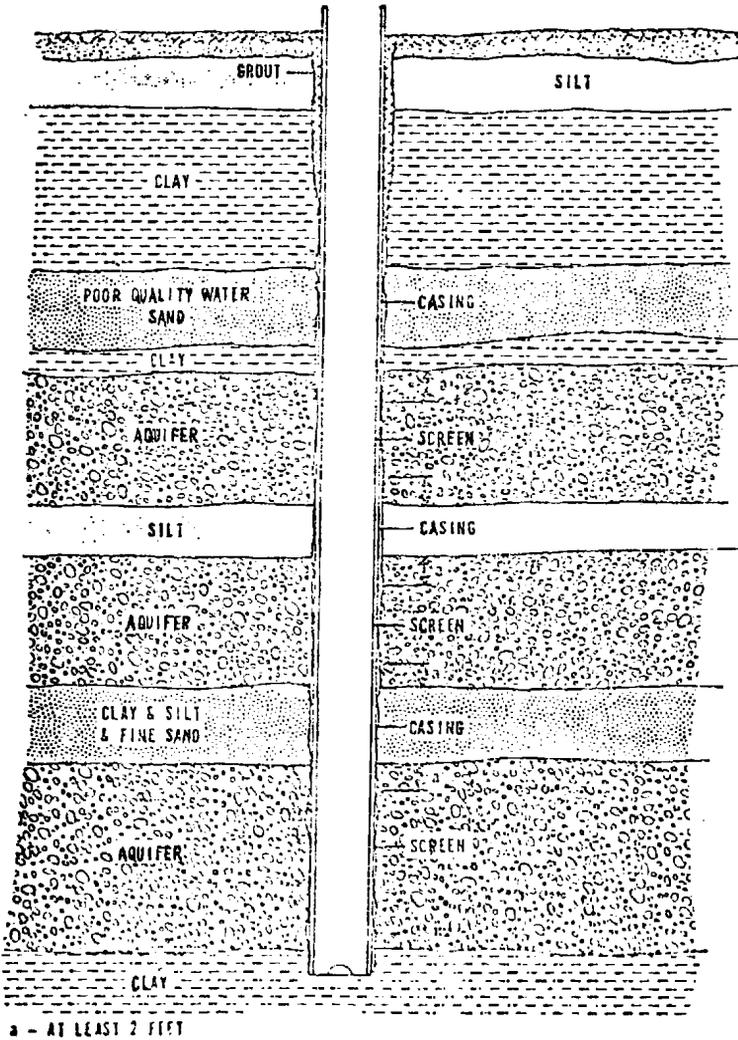


FIG. 3 CONSTRUCTION OF WELL IN AQUIFER OVERLAIN BY CLAY, SILT AND FINE SAND

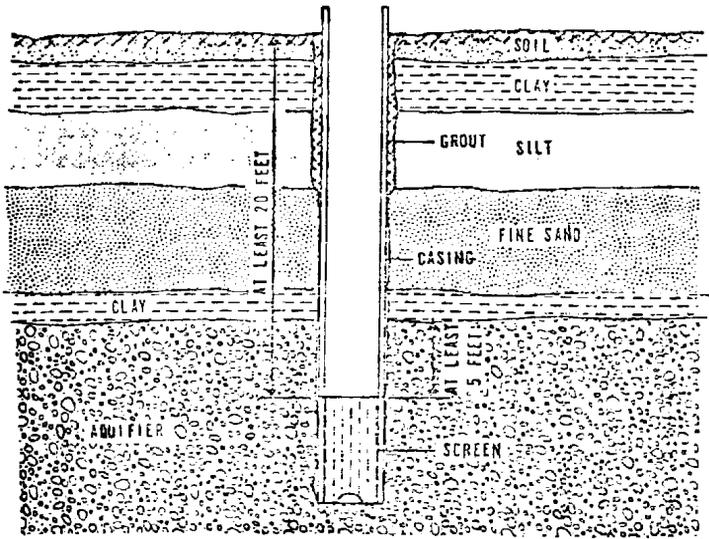


FIG. 4 CONSTRUCTION OF WELL IN AN AQUIFER OVERLAIN BY TILL

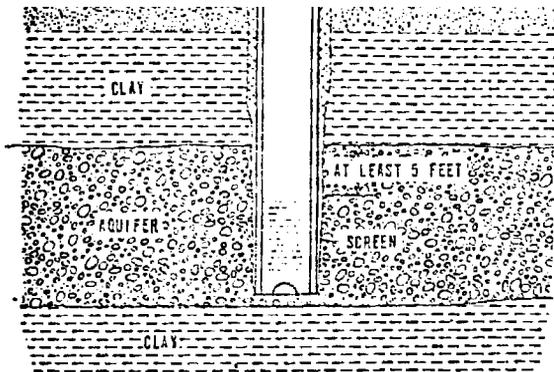


FIG. 5 CONSTRUCTION OF WELL IN AQUIFER OVERLAIN BY CLAY

