

Chapter 233. Wells

Adopted 2/28/90 by Board of Health

Modified 7/11/16

§ 233-1. Purpose

These Regulations are intended to protect the public health and general welfare of the Town of Dover by ensuring that private wells and pumping systems are constructed in a manner that will protect the homeowner, the quality of groundwater in the Town, and the aquifer from which it is derived.

§ 233-2. Authority

- A. These Regulations are adopted by the Town of Dover, Board of Health (the Board) as authorized by Massachusetts General Laws Chapter 111, Section 31. These Regulations supersede all previous regulations adopted by the Town of Dover Board of Health as Chapter 233 (Wells) of the Code of the Town of Dover.
- B. Public Water Supply wells, as defined in 310 CMR 22.00, are subject to regulation under 310 CMR 22.00 and are exempt from these Regulations.

§ 233-3. Definitions

Agent – Any person designated by the Board of Health to enforce these Regulations. The Agent shall have all the authority of the Board and shall be directly responsible to the Board and under its direction and control.

Applicant – Any person who intends to have a private well constructed.

Aquifer – A water-bearing geologic formation, group of formations or part of a formation that contains sufficient permeable material to yield significant quantities of water for consumption.

Bentonite Grout – A mixture of Bentonite (API Standard 13A) and water in a ratio of not less than one pound of Bentonite per gallon of water.

Board – The Board of Health, Dover, Massachusetts (or its authorized Agent).

Casing - Impervious steel pipe placed in a borehole to prevent the walls from caving in and to serve as a vertical conduit for the water in the well. Casings shall be a minimum of 6” inside diameter.

Certified Laboratory – Any laboratory, which has full certification granted by the Massachusetts Department of Environmental Protection as provided by the most

recent edition of "Certification Status of Commercial Environmental Laboratories." Provisional Certification shall also qualify.

Concrete – A mixture of Portland Cement ASTM Standard Type I or API Standard 10A Class A sand, gravel, and water in a proportion of not more than 5 parts of sand plus gravel to 1 part cement by volume and not more than six gallons of water.

Drawdown (Tanks) – The available volume of water that can be removed from a fully charged tank or tanks to the point of pump turn-on for recharge.

Drilled Well – A well constructed by a cable tool or rotary-drilling machine.

Fracking – The pumping of water under pressure into a drilled well in order to open fractures and fissures to increase water volume.

Dug Well – Any well, designed for the purpose of supplying water, that is hand or machine excavated rather than driven or drilled. Dug wells are prohibited.

Ground Source Heat Pump Well – Any excavation by any method for the purpose of transferring heat to or from the earth for heating and cooling purposes. Ground Source Heat Pump Wells shall be installed in accordance with MassDEP Guidelines; Sections 233-6 through 233-11 of these Regulations do not apply to such wells.

Irrigation Well – Any driven or drilled well used for the sole purpose of watering or irrigation. Wells used for irrigation shall meet all requirements for a Private Drinking Water Well and must be approved by the Board or its Agent. The applicant may request a waiver, in writing, from the 5 foot minimum depth for the irrigation line but acknowledges that in the event the irrigation line will be connected to the dwelling it will be reinstalled to the required 5 foot depth. In no circumstances shall there be more than one water line servicing the dwelling.

Massachusetts Certified Well Driller – Any person or company properly certified by the Commonwealth of Massachusetts pursuant to 310 CMR 46.00, or registered with the Commonwealth pursuant to the predecessor regulations (313 CMR 3.00), to install wells.

MassDEP – The Massachusetts Department of Environmental Protection.

Monitor Well – A pipe driven into the ground at varying depths for the purpose of measuring groundwater depths or obtaining water samples but not for water supply. Sections 233-6 through 233-11 of these Regulations do not apply to such wells.

Neat Cement Grout – A mixture consisting of one bag (94 pounds) of Portland Cement (ASTM Standard C150, Type I or API Standard 10, Class A) to not more than six gallons of clean water. Bentonite (API Standard 13A), up to two percent by

weight of cement, shall be added to reduce shrinkage. Other additives, as described in ASTM Standard C494, may be used to increase fluidity and/or control.

Person – An individual, corporation, company, association, trust or partnership.

Private Well – Any well not regulated by 310 CMR 22.00.

Private Drinking Water Well – Any driven or drilled well developed to supply, test or monitor water for human consumption, that is not regulated by 310 CMR 22.00.

Pump Test – A procedure for the purpose of establishing a flow rate volume and for obtaining a water sample for lab testing.

Recharge Time (Tanks) – The total amount of time needed to recharge with water the tank or tanks from pump turn-on until turn-off on a normal pump cycle.

Sand Cement Grout – A mixture consisting of Portland Type I Cement, sand, and water in the proportion of one part Portland cement to at least three and no more than four parts sand by volume and not more than six gallons of water per bag (94 lbs.) Portland Cement.

Shallow Driven Well – A well constructed by driving a small-diameter pipe into shallow water-bearing sand or gravel.

Static Water Level – The level of water in a well under non-pumping conditions.

Structure – A combination of materials assembled at a location to give support or shelter such as a building, framework, retaining wall, fence or the like.

Water System – A combination of equipment (pumps, tanks, pipes, controls, etc.) used for the purpose of supplying water.

Well – A hole with a depth greater than its largest surface diameter, developed to withdraw groundwater.

§ 233-4. Ground Source Heat Pump Wells

Ground Source Heat Pump Wells (either open or closed loop systems) shall be installed using MassDEP Guidelines for Ground Source Heat Pump Wells, and any other requirements the Board or its Agent deem necessary to protect the public health. Such wells shall conform to all applicable Massachusetts regulations. The Agent shall review the design plans to verify such conformity.

§ 233-5. Well Construction Permit

- A. Before the commencement of construction of a private well, the property owner or his designated representative shall complete the well construction application in full. No work shall commence until the application is approved by the Board or its Agent. Each permit application shall include the following (other specifics may be required):
- (1) Property owner's name, address, and phone number.
 - (2) The Massachusetts Certified Well Driller's name, address, phone number and proof of valid Massachusetts Well Driller Certification. Only a Massachusetts Certified Well Driller may install a well.
 - (3) A plan to scale showing the location of the proposed well and associated water and electric lines in relation to:
 - (a) Existing or proposed above or below-ground structures.
 - (b) Subsurface sewage disposal or drainage systems.
 - (c) Subsurface heating oil or fuel storage tanks.
 - (d) Public Ways, Easements, and driveways.
 - (e) Any other wells in use or abandoned.
 - (f) Any other potential source of contamination.
 - (g) Utility services.
- B. A copy of the approved well permit shall be on site at all times while work is taking place.
- C. Each well construction permit shall expire one (1) year from the date of issuance unless revoked for cause. Each well shall require a separate permit.
- D. Permit fees shall be set from time to time by the Board of Health.
- E. A well construction permit shall be required for the installation of any new private well or for work on any existing private well that may alter either the quality or quantity of the water from said well. Well construction permits are not transferrable.

§ 233-6. Well Yield

Each well must supply adequate water for the purpose for which it is intended and shall give satisfactory evidence of continuing capability to do so.

- A. Drilled wells for domestic use shall produce a minimum of 3 ½ gallons per minute for up to a three bedroom home. For each additional bedroom ½ gallon per minute shall be added to the total water yield. All rooms other than one (1) dining room, one (1) family room, one (1) living room, halls,

bathrooms, and kitchens, shall be considered a bedroom. For non-domestic drilled well uses, yield shall be at least 3 ½ gallons per minute. This minimum may be reduced if the yield is sufficient for the intended use, with the approval of the Agent.

- B. Shallow driven wells for domestic or irrigation use shall be fully developed, shall produce two times the required volume (as set forth in Subsection A above) at a vacuum of less than 20" and shall be free of sand, clay, silt and other materials under foreseeable conditions. Shallow driven wells may be approved by the Board or its Agent in circumstances where a drilled well cannot be constructed.

§ 233-7. Well Locations

- A. In locating a well, the Applicant shall identify and list all potential sources of contamination which exist or are proposed within 200 feet of the site.
- B. Each well shall have adequate accessibility for future repair, maintenance, testing, and inspection.
- C. Each well shall be located at least 10 feet from any property line.
- D. The centerline of a well if extended vertically, shall clear any projection from an adjacent building or structure by at least 10 feet.
- E. Each well shall be located a minimum of 25 feet from the edge of pavement or driving surface of any roadway.
- F. Each well shall be located at least 25 feet laterally from the normal high water mark of any lake, pond, river, stream, ditch or watercourse.
- G. There shall be a separate well for each house not served by a public water supply. The well serving a house shall be located within the lot boundaries of the house site. No well shall be used to supply more than one dwelling without approval by the Board or its Agent.
- H. No well shall be located less than 50 feet from any well on the same property nor less than 100 feet from an abutter's well unless approved by the Board or its agent. No well installed for irrigation purposes shall be placed so as to prevent an abutter from installing an irrigation well. In the event a well is decommissioned, the new well may be no closer than 10 feet from said well. Driven wells may be located closer with approval from the Board or its Agent.
- I. No well shall be located less than 100 feet from any subsurface sewage disposal system.

- J. No well shall be located less than 5 feet from the edge of any driveway.
- K. No well or water line shall be located less than 5 feet from any underground electric or other utility service except when the water and electric lines serve the same dwelling.
- L. The center line of a well, if extended vertically, shall clear any overhead electric or other utility service by a minimum of 15 feet.
- M. No well shall be located less than 25 feet from a swimming pool or a hot tub/spa.
- N. No well shall be located less than 100 feet from a backwash pit or leaching area for a swimming pool or hot tub/spa.
- O. The minimum distances established in this section may be increased when, in the opinion of the Board or its Agent, site conditions may exist that could adversely affect groundwater quality or quantity (including on adjacent properties).

§ 233-8. Water Quality Testing

- A. Upon completion of its construction and prior to its use, a well shall be disinfected and a water quality test shall be conducted. The water quality test shall utilize the most current EPA-approved methods for testing drinking water. Analysis may be performed only by a Massachusetts Certified Laboratory and shall include at a minimum analysis for the following:

Coliform	Total Bacteria
pH	Manganese
Color	Sodium
Odor	Chloride
Iron	Turbidity
Nitrogen Nitrite	Nitrogen Nitrate
Volatile Organic Compounds	Total Hardness
Total Alkalinity	Total Dissolved solids
- B. Prior to the sale of any existing house a water quality test shall be performed on the existing well and shall be taken using a raw water sample. The sample shall be taken directly from the well or in the event that is not possible it shall be taken from the water line before it enters the holding tank. If the Nitrate or Nitrogen levels exceed 5mg/L, a Reverse Osmosis (R.O.) system shall be installed. At a minimum the system can be placed at the drinking water location and a Deed Restriction requiring maintenance of the R.O. system shall be recorded at the Registry of Deeds.

- C. For the Board to approve use of a private drinking water well, the results of the testing must conform to current U.S. Environmental Protection Agency Drinking Water Regulations.
- D. The Board reserves the right to require retesting of the elements and characteristics in Subsection A above and/or testing for additional parameters, when, in the opinion of the Board or its Agent such testing is necessary due to local and/or specific conditions that may affect the quality of the water. All testing and related costs are the responsibility of the applicant. The Board recommends that all private drinking water wells be tested at least every 5 years.
- E. Upon acceptance of the quality and quantity testing, the Board or its Agent shall sign the building permit if required, subject to any restrictions to be placed on the deed (easements, yearly testing, etc.) that are determined by the Board or its Agent to be necessary for the protection of public health. Without prior approval by the Board or its Agent, a foundation or building permit shall not be issued for a new home, addition, or alterations which may require additional water as per Section 233-6 (Well Yield) of these Regulations.

§ 233-9. General Well Design and Construction Parameters

- A. The Massachusetts Certified Well Driller shall observe all sanitary measures and precautions in the performance of his work in order to prevent the possible pollution or contamination of the well, aquifer and adjacent area.
- B. All parts, equipment and appurtenances used in the water system shall be selected, installed, and assembled so that the system will operate within the design specifications of each of its parts, and shall deliver adequate pressure and volume consistent with the well output and particular job requirements, and will provide said service under normal operating conditions.
- C. No part of a water system shall be buried, covered or concealed without prior approval of the Board or its Agent.
- D. All equipment and parts of the water system shall be installed so as to be frost proof under all foreseeable conditions. Water lines shall be buried a minimum of 5 feet to finish grade. There shall be a minimum three (3) foot separation in elevation between the water and electric lines.
- E. All wells except shallow driven wells shall be cased with 6" minimum ID Schedule 40 steel pipe. But in all installations the casing shall be of adequate strength and durability to withstand anticipated formation and hydrostatic pressures imposed during installation and use. A physical connection is not

- permitted between a private well, as permitted under these Regulations, and a Public Water Supply as regulated by 310 CMR 22.00.
- F. Shallow driven wells shall be 2 1/2" Schedule 40 steel pipe installed with a screen which shall be made of stainless steel.
 - G. All water used for drilling and well development or to mix drilling fluids shall be obtained from a source which will not result in contamination of the well or water-bearing zones penetrated by the well. Water shall be conveyed in sanitary containers and a free chlorine residual of 10 mg/L shall be maintained in any water used at the drill site. Water from wetlands, swamps and similar surface supplies shall not be used.
 - H. All drilling equipment shall be cleaned and disinfected prior to drilling each new well or test hole.
 - I. All drilled wells shall be thoroughly flushed before removal of the drilling equipment.
 - J. The completed well shall be sufficiently plumb and straight so that there will be no interference with the installation, alignment, operation or future removal of the permanent pump and related equipment.
 - K. Installation of the well casing shall be done in a manner that does not alter the shape, size or strength of the casing or joints. A standard drive shoe shall be used when the casing is installed. The drive shoe shall be welded or threaded to the casing. Couplings shall not be used as drive shoes. Upon completion of the installation the entire length of the casing shall be water tight.
 - L. All casing, used in the construction of private wells, shall be free of pits, breaks gouges, deep scratches and other defects and shall comply with material standards approved by the American Water Works Association. If used casing is to be installed it shall be decontaminated and disinfected prior to installation. Six inch casing shall be a minimum 19 lbs per foot Schedule 40 steel pipe 6" ID. Eight inch casing shall be a minimum of 28 lbs per foot Schedule 40 steel pipe 8" ID.
 - M. The casing shall extend a minimum of 12" and a maximum of 18" above finish grade. For wells constructed in a flood plain the casing shall be a minimum of 18" above the level of the highest recorded flood which shall be noted on the plan.
 - N. For wells drilled in bedrock the casing shall be set a minimum of 10 feet into competent bedrock and shall be properly grouted using either a Bentonite base grout, a neat cement grout, or a sand cement grout and shall use

standard grouting techniques as described in the MassDEP Private Well Guidelines.

- O. Well screens used on all 6" or larger wells that are completed in unconsolidated formation shall be made of stainless steel. The well screen aperture openings, screen length and diameter shall be selected so as not to limit the aquifer's water yielding characteristics while preventing access of soil particles that would detract from the well efficiency and yield.
- P. Pursuant to 310 CMR 46.00, unless a holder of a certificate in accordance with 310 CMR 46.02, or a registration in accordance with the predecessor regulations, 313 CMR 3.00, no person shall engage in the business of well drilling in the Commonwealth.
- Q. The electric supply for the well shall be installed in a 1 inch minimum protective conduit. It is the contractor's responsibility to obtain a permit for the installation of the electric line.
- R. The Massachusetts Certified Well Driller shall take all necessary precautions to contain drilling fluids, water and cuttings to prevent any runoff to roads, streams, ponds or wetlands.
- S. No person or company shall blast or dynamite a well or wells.
- T. Fracking may be done with the approval of the Board or its Agent.

§ 233-10. Pumps and Pumping Equipment

- A. Shallow driven well pumps shall be installed as near the well and as low as possible to minimize lift and friction loss. Suction lines shall be a minimum of 1 inch or larger as required.
- B. All 6" or larger wells shall use submersible pumps. Submersible pumps of ½ HP or smaller on settings of 100 feet or less may be set on poly pipe. Higher HP pumps or deeper settings shall be set as a minimum on 1 inch Schedule 80 PVC with threaded couplings. Couplings shall be Schedule 80 PVC or galvanized pipe and couplings. Proper pit-less adaptors shall be used. Larger pipe sizes may be required. Schedule 40 PVC pipe and fittings are not acceptable for submersible pump installations.
- C. Minimum storage capacity shall be such that the minimum tank drawdown at 30 lbs/50 lbs shall be no less than 36 gallons. In any event, the minimum size storage tank capacity shall be 120 gallons.
- D. In no event shall the tank recharge time be less than three minutes.

- E. Multiple tanks may be used to achieve the required minimum storage.
- F. "Water Treatment Systems," such as iron/hardness removal, shall not discharge into a septic system.
- G. A proposed reverse-osmosis treatment system must be approved by the Board before it can be installed and if approved may only be installed by or under the supervision of a licensed installer.

§ 233-11. Pump Test

- A. Before being approved every well shall be pump tested to determine the yield at the completion of a prolonged pump test. This yield must conform to Section 233-6 (Well Yield) of these Regulations.
- B. There shall be a minimum of a 6 hour pump test for every new drilled well or for wells in existence to be used in conjunction with new construction. For wells that have been fracked there shall be an additional continuous 6 hour pump test to remove all frack water prior to performing the actual pump test. Pump tests for a fracked well shall be conducted over a two-day period.
- C. Minimum pump test times are 6 hours. Longer tests may be required.
- D. Wells shall have at least a 90% recovery in 24 hours.
- E. When more than one test is required to determine well yield for any reason, an additional test fee will be required.

§ 233-12. Decommissioning Requirement

- A. Abandoned wells, test holes and borings, shall be decommissioned so as to prevent the well, including the annular space outside the casing, from becoming a channel allowing the vertical movement of water and possible contamination. The owner shall decommission the well if the well meets any of the following criteria or is ordered by the Board:
 - (1) Construction of the well is terminated prior to completion or fails to meet the Town of Dover Board of Health Regulations.
 - (2) The well owner notifies the Board that the use of the well is to be permanently discontinued.
 - (3) The well has been out of service for at least 3 years. A well that has been out of service for at least 3 years may be re-commissioned after completing a new pump test and laboratory test in accordance with Sections 233-8 and 233-11.

- (4) The well is a potential hazard to public health or safety and the situation cannot be corrected as reported by a Massachusetts Certified Well Driller.
- (5) The well is in such a state of disrepair that its use is impractical.
- B. The property owner shall be responsible for ensuring that all abandoned wells, test holes and borings are properly decommissioned.
- C. Only Massachusetts Certified Well Drillers may decommission wells, test holes and borings.
- D. Abandoned wells, test holes or borings shall be completely filled and plugged with either neat cement grout, sand cement grout, concrete or Bentonite grout. Deep wells may be filled to within 50 feet of the ground with sand before using any of the grouts.
- E. Regardless of the type used, the grout should:
 - (1) Be sufficiently fluid so it can be applied through a Tremie pipe from the bottom of the well upward.
 - (2) Remain as a homogenous fluid during installation and curing.
 - (3) Be resistant to chemical or physical deterioration.
 - (4) Not leach chemicals that would affect the quality of the ground water.
- F. The plugging material shall be introduced at the bottom of the well, test well or boring and placed progressively upward to a level approximately 8 feet below finish grade at which time the casing shall be cut off approximately 4 feet below finish grade. The remaining space in the well or bore hole (approximately 4 feet) shall then be filled with concrete.

§ 233-13. Enforcement

The Board or its Agent has the authority to investigate suspected or known violations of these Regulations and/or violations of any deed restriction required by the Board. The Board of Health or its Agent shall have authority to enter upon privately and publicly owned property for the purpose of performing the Board's duties under these Regulations and may make or cause to be made such examinations or inspections as the Board deems necessary, subject to the constitutions and laws of the United States and the Commonwealth. The Board may take actions as it deems appropriate, within its authority, for the protection of public health, safety, welfare, or the environment, and to enforce any of the provisions of these Regulations.

If any investigation reveals a violation of these Regulations or a deed restriction required by the Board, the Board may order the private well owner to comply with

the violated provision(s), and/or may take other action within its authority as the Board deems appropriate.

Any Order the Board issues shall be in writing and served in the following manner:

- (a) personally, by any person authorized to serve civil process,
- (b) by any person authorized to serve civil process by leaving a copy of the Order at the property owner's address,
- (c) by sending the property owner a copy of the Order by registered or certified mail, return receipt requested, or
- (d) by posting a copy of the Order in a conspicuous place on or about the premise where the private well is located and by advertising it for at least three (3) out of five (5) consecutive days in one or more newspapers of general circulation within the municipality where the private well is located, if the property owner's last and usual place of residence is unknown or outside the Commonwealth.

Pursuant to its authority under G.L. c. 111, § 31, the Board may assess fines of up to \$300 per offense for violation of these Regulations or of an Order issued hereunder. Each day during which a violation continues shall constitute a separate offense. The Board may collect these fines using the non-criminal disposition procedure under G.L. c. 40, § 21D, and Town of Dover General By-Laws Chapter 20, Article I, or by filing a criminal complaint at the appropriate venue.

The Board of Health may apply for injunctive relief to enforce the provisions of these Regulations in any court of competent jurisdiction.

§ 233-14. Hearing

Any person to whom the Board issues an Order may request a hearing before the Board by filing with the Board within seven (7) days after the Order was served a written request for a hearing.

Upon receipt of a hearing request, the Board shall set a time and place for the Hearing and shall inform the well owner in writing. The hearing shall commence within thirty (30) days from the day on which the written request was made, unless a later time is agreed to in writing by the Board and the person requesting the hearing. At the hearing the person requesting the hearing shall be given an opportunity to be heard and show why the Order should be modified or withdrawn. After the close of the hearing, the Board shall issue a written decision to sustain, modify or withdraw the Order and shall mail a copy of the decision, by certified mail, return receipt requested, to the person who requested the hearing. If the Board sustains or modifies the Order, it shall be carried out within the time period allotted in the original Order or in the modification.

§ 233-15. Appeal

Any person aggrieved by a final Order, Variance, or Well Construction Permit (or denial of a Variance or a Well Construction Permit) may appeal to any court of competent jurisdiction as provided by the laws of the Commonwealth.

§ 233-16. Variance

The Board may grant a Variance to any provision of these Regulations when, in its opinion, the enforcement would result in manifest injustice, and the applicant has demonstrated that the equivalent degree of protection will be provided without the strict application of the particular provision(s) sought to be varied.

Every request for a Variance shall be in writing and shall state the specific provisions of this regulation from which a Variance is sought, the reasons for seeking the Variance and proof of the notice required below. The request shall also contain the information to establish manifest injustice and equivalent degree of protection. At least ten (10) days prior to submission to the Board, the applicant shall provide notice of their intent to request a Variance as follows: a) by certified mail with delivery confirmation to all owners of property within 300 feet of the property upon which the private well will be or is located and b) publication in a newspaper of general circulation in the town or city in which the private well is located. The notice shall include at a minimum: the name and address of the applicant, the property address where the well is located or to be constructed, a statement of the provision(s) of this regulation from which a Variance is sought, and the reason for seeking the Variance. Any grant or denial of a variance shall be in writing and shall contain a brief statement of the reasons for approving or denying the Variance. A copy of each Variance shall be conspicuously posted for thirty (30) days following its issuance and shall be available to the public at all reasonable hours in the Office of the Town Clerk or Office of the Board of Health. No work shall be done under any Variance until thirty (30) days elapse from its issuance, unless the Board certifies in writing that an emergency exists.

The Board may issue a Variance subject to such conditions as it deems necessary to ensure public health, safety welfare or the environment. Any such conditions shall be stated in writing in the Board's grant of the Variance. The Board may revoke, modify or suspend, in whole or in part, a Variance after the property owner has been notified in writing and is afforded an opportunity to be heard, pursuant to Section 233-14 of these Regulations.

§ 233-17. Severability

If any provision of these Regulations is held to be invalid by a court of competent jurisdiction, the invalidity shall be limited to said provision(s) and the remainder of these Regulations shall remain valid and effective.

§ 233-18. Disclaimer

The issuance of a Well Permit shall not be construed as a guarantee by the Board or its Agent that the water system will function satisfactorily nor that the water supply will be of sufficient quality or quantity for its intended use.

§ 233-19. Effective Date

These Regulations were adopted by vote of the Town of Dover, Massachusetts, Board of Health, at their regularly scheduled meeting on 7/11/16. These Regulations will take effect on the date that notice is published in a local newspaper.

Notice of these Regulations shall be published and a copy placed on file in the Board of Health Office.

Effective 7/28/16