

## **WATER SUPPLY REGULATIONS**

*Adopted: March 20, 1991*

The Board of Health of the Town of Millis, Commonwealth of Massachusetts, acting under the authority of Chapter 111, Section 31 of the Massachusetts General Laws and amendments and additions thereto, hereby adopts regulations for water for the Town of Millis, Massachusetts, as follows:

### **1.1 DEFINITIONS**

- 1.1.1 **WELL:** Includes any pit, pipe excavation, spring, casing, drill hole or other source of water to be used for any purpose of supplying potable water in the Town of Millis and shall include dug wells, driven or tubular wells, drilled wells (artesian or otherwise) and springs, gravel packed, gravel walled wells, gravel developed and wash borings and as further described in U.S. Environmental Protection Agency Manual of Individual Water Supply Systems.
- 1.1.2 **WATER SYSTEMS:** Includes pipes, valves, fittings, tanks, pumps, motors, switches, controls, and appurtenances installed or used for the purpose of storage, distribution, filtration, treatment or purification of water for any use whether or not inside a building.
- 1.1.3 **PRIVATE WATER SUPPLY:** Any water system serving or intended to serve water for human consumption or for domestic uses or purposes on one lot. The system shall be contained on the lot and shall include all of the sources, treatment works, and distribution lines to the point where distribution takes place within the building on the lot.
- 1.1.4 **SEMI-PUBLIC WATER SUPPLY:** Any water system serving or intended to serve water for human consumption or for domestic uses or purposes including, but not limited to, multiple dwellings, restaurants, dairies, schools, institutions, campgrounds, recreational camps for children, state/town forests, parks and beaches.

### **1.2 PERMITS FOR PRIVATE OR SEMI-PUBLIC WATER SUPPLY**

- 1.2.1 **PERMIT REQUIREMENTS:** No private or semi-public water supply shall be installed altered or repaired until a permit has been obtained from the Board of Health or its Agent. The fee for this permit shall be set by the Board of Health from time to time. A permit so granted shall expire 24 months from the date of issue unless construction is begun.
- 1.2.2 **PERMIT APPLICATION:** A plot plan shall be submitted with the application for a well permit to the Board of Health indicating the proposed location of the well, all buildings, boundary lines and septic systems (within 200 feet).

## 1.3 GENERAL REQUIREMENTS

- 1.3.1 PERMIT RELEASE: No foundation or building permit shall be issued until the well is installed, completed and has been demonstrated to supply water of the quality and quantity specified herein. No occupancy of the building the well is to serve shall be permitted until an acceptable tested water sample has been obtained from a tap in the building.
- 1.3.2 SANITARY PERFORMANCE: The well contractor shall observe sanitary measures and precautions in the performance of his work in order to prevent pollution or contamination of the well. Use of water from streams, swamps or abandoned wells for drilling shall be prohibited.
- 1.3.3 WELL DRILLERS: Well drillers must be registered with the Massachusetts Water Resources Commission. A copy of such registration shall be available on site for the Agent's review.
- 1.3.4 WELL PROTECTION: No well shall be drilled in standing water or "low spots" that may allow "ponding" of rainfall, run-off or groundwater surfacing. The casing shall be set sufficiently into bedrock and properly sealed to keep out surface water or entry of any other surface or subsurface contamination. The well cap shall be eighteen (18) inches above surface grade. A four (4) foot diameter apron shall be constructed around the casing sloping away at a minimum of eight (8) horizontal to one (1) vertical in all directions to the finished grade. The casing shall be sealed with cement grout to six (6) feet below grade or to bedrock, whichever is less. Wells installed downgrade of septic systems shall have the casings sealed with cement grout from the apron at surface grade to twenty (20) feet below grade or to bedrock. When bedrock is encountered within twenty (20) feet of surface grade, the seal shall be extended at least five (5) feet into the impervious (bedrock) formation.
- 1.3.5 WELL LOCATION: The distance from a well to a sewage disposal system shall be maximized.
- 1.3.5.1 No well shall be less than one hundred (100) feet from a leaching area located downhill from such well.
- 1.3.5.2 No well shall be less than one hundred twenty-five (125) feet from a leaching area located uphill from such well.
- 1.3.5.3 When the soil percolation rate is less than three (3) minutes per inch, those distances shall be increased by a minimum of twenty-five (25) feet.
- 1.3.5.4 Wells shall be located no less than fifty-five (55) feet from the edge of the traveled way or fifty (50) feet from the edge of the right-of-way, whichever is greater.
- 1.3.5.5 Wells shall be located no less than twenty-five (25) feet from any lot line, seventy-five (75) feet from any adjacent well, ten (10) feet from any building or projection thereof, fifty (50) feet from any part of the sub-surface sewage disposal system.
- 1.3.5.6 The distance may be increased when, in the opinion of the Board of Health, adverse conditions exist.
- 1.3.6 NUMBER OF WELLS: There shall be a separate well for each house. The well serving that house shall be located within the lot boundaries of the house site. No well shall be used to supply more than one dwelling (Chapter 40, Section 54 MGL).
- 1.3.7 PUMP HOUSES: Pump houses, pump rooms and pitless adapters shall be installed in accordance with the "Individual Water System" USEPA Manual.

- 1.3.8 PUMP HOUSE PROTECTION: Pump houses, pump or pipe pits and wells shall be designed and constructed so as to prevent flooding, freezing and the entrance of sources of pollution or contamination.
- 1.3.9 APPROVALS: No person shall install or enter into a contract for installing or making additions, modifications or alterations to any private or "semi-public" water supply before submitting complete plans, specifications and descriptions to the Board of Health and receive from them written approval. Private and "semi-public" water supply systems shall be approved by the Board of Health before occupancy is permitted.

## 1.4 WELL SPECIFICATIONS

- 1.4.1 WELL YIELD: There shall be a minimum yield of 300 gallons per bedroom per day at twenty (20) pounds per square inch (p.s.i.) at the highest fixture serviced. System capacity for other than residential water supplies must be adequate to meet the projected needs.
- 1.4.2 STORAGE: All demands for water shall be provided from storage in a pressure tank. Pressure tanks for individual home installations shall be of a diaphragm type and have a minimum capacity of thirty-six (36) gallons. Pressure tanks may be installed in series to meet storage volume requirements.
- 1.4.3 TESTS: A log of the well, showing depth and type of overburden, depth of casing installed below surface grade, diameter of casing and diameter of the hole in the rock, static water level and the pumping rate which can be sustained for at least four (4) hours, at a constant drawn down depth.
- 1.4.3.1 A pump test shall be made with the faucet open to waste for a four (4) hour constant pumping period using a pump capable of producing ten (10) gallons per minute or more.
- 1.4.3.2 In the event the well is exhausted during the initial four (4) hour pump testing period, the faucet shall be so regulated after suitable well recovery (of not more than thirty (30) minutes) in order to allow pumping at a constant rate for an additional four (4) hours at a constant draw-down depth to determine the yield.
- 1.4.3.3 A sustained pumping rate of two (2) gallons per minute for a four (4) hour period shall be the minimum rate.
- 1.4.3.4 The well (after pump testing) shall recover to within ninety-five (95%) percent of the original static water level within a twenty-four (24) hour period.
- 1.4.3.5 Testing and evidence to show satisfactory well yield and recovery shall be demonstrated in the presence of the Agent for the Board of Health.
- 1.4.3.6 The results of all testing shall be submitted on an approved form to the Board of Health for approval and the well contractor shall be responsible for all data submitted.

1.4.3.7 Quantity tests shall be performed by competent pump or well drilling contractors and a well shall produce a supply for each dwelling unit served by an on-site well as follows:

<u>WELL DRAWING DEPTH</u>	<u>WELL YIELD – GPM for 4 HRS. (Minimum)</u>
to 100 feet	5
100 to 200 feet	4
200 to 300 feet	3
300 feet and over	2

1.4.4 AUXILIARY POWER: Auxiliary power must be available to maintain a water supply for multiple dwellings.

1.4.5 GRADE TERMINATION: A pitless adapter shall be provided such that the permanent watertight casing of the well shall terminate a minimum of eighteen (18) inches above the finished grade and/or the elevation of 100-year flood.

1.4.6 RESERVED

1.4.7 PIPES AND EQUIPMENT:

1.4.7.1 All service pipes and connections shall be of non-toxic materials and meet the specifications approved by the New England Water Works Association.

1.4.7.2 The installation of pipes shall be such that they are protected from crushing, freezing and/or attack by animals or rodents.

1.4.7.3 Dissimilar metals should be discouraged in the water system. The use of non-conductive plastic inserts between pipes and fittings or the installation of sacrificial anodes is helpful in minimizing electric corrosion problems.

1.4.7.4 Electrical service grounds shall not be attached to water piping. All electrical service and controls of the well must be permitted, inspected and approved according to Town and State regulations.

## **1.5 WATER QUALITY AND QUANTITY SPECIFICATIONS**

1.5.1 SANITARY PROTECTION: Sanitary protection shall be incorporated into the construction of the well. All newly completed wells shall be disinfected in accordance with instructions from the U.S. Environmental Protection Agency Manual of Individual Water Supply Systems.

1.5.2 SAMPLING/QUALITY: A minimum of two (2) water samples shall be submitted to a state approved laboratory for analysis, consistent with the requirements of the Board of Health. One sample shall be taken when the well installation is completed and one shall be taken from a tap in the dwelling before occupancy. All results shall be submitted to the Board for approval. Acceptance of water quality shall also be based on its conformance to the normal characteristics of groundwater in the area as well as established State and Federal drinking water standards.

### 1.5.3 LABORATORY TESTS:

1.5.3.1 A chemical, physical and bacteriological analysis of water, conducted by a Massachusetts Certified Laboratory, shall be required. Water which does not meet the accepted standards of agencies of the State or Federal Government for potable water supplies shall be grounds for the rejection of the well.

1.5.3.2 A bacteriological test to indicate a 0 per 100 ml coliform density shall be required. A total bacteria count shall also be determined at 35° C.

1.5.3.3 Chemical and physical analysis, including testing for volatile organic compounds (EPA 524), shall be required (acceptable alternate to 524 is EPA methodology 502.1 and 503.1. If the 502.1 and 503.1 methodologies are used and a volatile is detected, a double confirmation test is required.) Analysis shall be performed at least for pH, color, odor, iron, turbidity, manganese, ammonia nitrogen, nitrite nitrogen, nitrate nitrogen, alkalinity, total hardness, sodium chlorides, lead and arsenic.

1.5.3.4 Concentrations shall not exceed the following:

Color	15 units
Turbidity	5 standard turbidity units
Manganese	0.05 mg/l
Nitrate Nitrogen	10 mg/l
Chloride	250 mg/l
Iron	0.3 mg/l
Sodium	20 mg/l *

\*Sodium content exceeding this level must be made known to the occupant(s) and/or owner(s) in writing and a copy of such notification, signed by the occupant(s) and owner(s) submitted to the Board of Health.

1.5.3.5 Other parameters will be evaluated on a case-by-case basis by the Board of Health to establish the water's suitability as a private or semi-public water supply.

1.5.3.6 Where applicable, water quality of semi-public water supplies shall comply with effective regulations of the U.S. Environmental Protection Agency and the Commonwealth of Massachusetts.

1.5.3.7 If any concentration of volatile organics is detected or the sodium concentration is greater than 20 mg/l, a document shall be recorded in the Norfolk County Registry of Deeds which identifies the chemicals, their concentrations and health effects. A whole house treatment system for the removal of volatile organics shall be installed if they are detected.

1.5.4 WATER CONDITIONING: Permanent disinfection of a polluted supply shall be prohibited. If the natural water quality does not meet the physical and chemical criteria as listed in Section 1.5.3, water conditioning shall be required. Water softener or other treatment backwash shall not be discharged into the septic system. Treatment units shall be installed with the capability of bypassing such units if necessary or desired.

## **1.6 PROHIBITIONS**

- 1.6.1 Surface water supplies for private or semi-public water supplies shall be prohibited.
- 1.6.2 Cisterns shall be prohibited.
- 1.6.3 Cross connections for whatever purpose shall not be allowed without a written permit from the Massachusetts Department of Public Health and approval by the Millis Board of Health.
- 1.6.4 OTHER USE PROHIBITIONS: Wells used for drinking water and domestic water supply shall not be used to provide water for groundwater heat pump systems, for water cooling or air conditioning systems or irrigation. Any well used for such systems shall be approved by the Board of Health only after the applicant has submitted evidence to the satisfaction of the Board of Health that such use will not disrupt any quantity or quality of water from any nearby well, to satisfy the manufacturer's recommendations for proper equipment operation.

## **1.7 ENFORCEMENT**

- 1.7.1 The provisions of Title 1 of the State Environmental Code shall govern the enforcement of these regulations.
- 1.7.2 Orders: Service and Content
  - 1.7.2.1 If an examination as provided for in Section 1.4.3 and/or 1.5.3 reveals failure to comply with the provisions of these regulations, the Board of Health may order the person or company responsible to comply with the violated provision.
  - 1.7.2.2 The inspection and these regulations cannot be construed as a guarantee by the Town of Millis or its Agents that the water system will function satisfactorily.
  - 1.7.2.3 The Board of Health may require a restriction to be recorded in the Registry of Deeds in cases which, in the opinion of the Board of Health, the water analyses show marginal compliance with the criteria of these regulations.

## **1.8 SEVERABILITY**

- 1.8.1 If any section, paragraph, sentence, clause or phrase of these rules and regulations is held invalid or unconstitutional by a Court of Competent jurisdiction, such portion shall be deemed a separate and distinct provision and such decision shall not affect the validity of the remaining portions of these regulations which shall remain in full force and effect; and to this end the provisions of these rules and regulations are hereby declared severable.

*Amended: June 23, 1992 (Pg. 5, 1.5.3. Sec. C)*