



TOWN OF BELCHERTOWN BOARD OF HEALTH

## REGULATIONS FOR PRIVATE WELLS

### I. PURPOSES

These regulations are intended to protect the public health and general welfare by ensuring that private wells are constructed in a manner which will protect the quality and quantity of the groundwater derived from private wells.

### II. AUTHORITY

These regulations are adopted by the Belchertown Board of Health, as authorized by Massachusetts General Laws, Chapter 111, sections 31, 122 and 127A.

These regulations supersede all previous regulations adapted by the Board of Health pursuant to the construction of private wells.

### III. DEFINITIONS

**Abandoned water well:** means a well that meets any of the following criteria; (1) construction was terminated prior to completion of the well, (2) the well owner has notified the local Board of Health that use of the well has been permanently discontinued, (3) the well is a potential hazard to public health or safety and the situation cannot be corrected, (4) the well is in such a state of disrepair that its continued use is impractical, or (5) the well has the potential for transmitting contaminants into an aquifer, and the situation cannot be corrected,.

**Agent:** Any person designated and authorized by the Board to execute these regulations. The agent shall have all the authority of the appointing Board and shall be directly responsible to that Board and under its direction and control.

**Annular space:** means the space between two cylindrical objects, one of which surrounds the other, for example, the space between the wall of a drillhole and a casing pipe or between an inner and outer well casing.

**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 saturated permeable material to yield significant quantities of water to wells and springs,

**Board;** The Board of Health of Belchertown, Massachusetts or its authorized agent.

**Business of Digging or Drilling:** A person who charges a fee for digging or drilling a well, or a person who advertises for hire the availability to dig or drill wells within the Commonwealth of Massachusetts.

**Casing:** Impervious durable pipe placed in a boring to prevent the walls from caving and to serve as a vertical conduit for water in a well.

**Certified Laboratory:** Any Laboratory which has full certification by the Department of Environmental Protection as provided in the most recent edition of "Certification Status of Commercial Environmental Laboratories.

**Hydrofracturing:** means a process whereby water is pumped under high pressure into a well to fracture the surrounding rock thereby increasing the well yield.

**Person:** An individual, corporation, company, association, trust, or partnership.

**Private Well:** Any dug, driven, or drilled hole, with a depth greater than its largest surface diameter developed to supply water intended and/or used for human consumption and not subject to regulation 310 CMR 22.00.

**Pumping Test:** A procedure used to determine the characteristics of a well and adjacent aquifer by installing and operating a pump.

**Registered Well Driller:** Any person registered with the Department of Environmental Management/Division of Water Resources to dig or drill wells in the Commonwealth of Massachusetts.

**Required Volume of Water:** Gallons of water needed to support the households daily needs, based on the following equation: the number of bedrooms plus one, times one hundred ten gallons, times a safety factor of two.

**Static Water Level:** The level of water in a well under non pumping conditions.

**Structures:** A combination of materials assembled at a fixed location to give support or shelter, such as a building, framework, retaining wall, fence, or the like,

**Stump Dump:** Wood waste disposal sites either buried or above ground with a volume of fifty (50) cubic yards or greater of stumps, brush, or trees. Temporary storage of wood products with an intended value such as fire wood and lumber, are excluded.

**Unconsolidated formation:** Means any naturally occurring uncemented, unlithified material such as sand, gravel, clay or soil.

**Utility Right of Way:** Any corridor of land over which facilities such as rail roads, power lines, communication lines, or pipe lines are located.

**Yield:** Means the quantity of water per unit of time which may flow or be pumped from a well under specified conditions.

#### **IV, WELL CONSTRUCTION PERMIT AND APPLICATION REQUIREMENTS**

The property owner or his designated representative shall obtain a permit from the Board of Health prior to the commencement of construction of a private well. Each permit shall have two parts; the Application and the Permit to Construct

A. the Application, plus three (3) copies, signed by the property owner or his representative, shall include the following;

1. the property owner's name and address
2. an attached locus map identifying the property, and

- giving the tax map and lot numbers, plus street address, if available
3. a plan with a specified scale, signed by a professional engineer or registered sanitarian, showing the location of the proposed well in relation to items listed in **IV.A**, 5 and 6 below.

Note: for new wells for existing structures [replacement wells], the Board of Health may wave the requirement in section **IV.A.3**, that a Registered Sanitarian or Professional Engineer sign the plan. Instead the applicant may prepare the plan provided that a site visit by the Board or its agent deems it to be an acceptable location. In this circumstance the permit fee in section **IV.A**, 7 below, will be doubled

4. an estimate of the Required Volume of Water necessary for the anticipated uses of the property (see definitions)
5. a description and location of prior and current land uses within two hundred (200) feet of the proposed well location, which represent a potential source of contamination, including but not limited to the following:
  - a. existing and proposed structures
  - b. subsurface sewage disposal systems
  - c. wetlands and floodplains
  - d. subsurface fuel storage tanks
  - e. public: ways
  - f. utility rights of way
  - g. any other potential sources of pollution

Note: a statement is required for any of the above which do not exist

6. a description and location of waste sites, including, but not limited to landfills, stump dumps, transfer stations and hazardous waste disposal sites, and other underground storage tanks, and agricultural land uses that are within five hundred (500) feet of the well site.
7. A permit fee of \$ 25
  - B within twenty one (21) days of request of the application, the Board may grant the petitioner's application for a permit, when in the Board's opinion the construction will not result in harm to the public health or environment. But when it appears to the Board such harm may result, the Board may deny the permit application. The Board may request additional information before rendering a decision.
  - C The permit to construct shall be on the site at all times that work is taking place. Each permit shall expire two (2) years from the date of issuance unless revoked for cause. Permits may be extended provided that a written request is received by the Board prior to the expiration date. No additional fee shall be charged for the proposed well.

## **V. WATER SUPPLY CERTIFICATE**

The issuance of a Water Supply Certificate by the Board shall certify that the private well may be used as a drinking water supply in accordance with 105 CMR 410.180. The property owner must obtain a Certificate prior to the issuance of an occupancy permit for new construction, and before use of the well water for domestic purposes for existing structures.

The following shall be submitted to the Board of Health to obtain a Water Supply Certificate:

- A. a copy of the approved Well Construction Permit or an "as built" plan if the actual location of the well or other structure is changed.
- B. a copy of the Water Well Completion Report as required by the Massachusetts Water Resources Commission (CMR 313, section 3.00)

- C. a copy of the Pumping Test Report required pursuant to Section VII of these regulations
- D. a copy of the Water Quality Report required pursuant to Section VIII of these regulations
- E. a statement from the Well Driller that the well construction complies with the requirements in section VII of these regulations and with all other Local, State and Federal Laws, Statutes and regulations.

Upon receipt and review of the above documents, the Board or its agent shall make a final decision on the application for a Water Supply Certificate within five (5) business days. This decision shall be in writing and shall comprise one of the following actions:

- A. issue a Water Supply Certificate
- B. deny applicant a Water Supply Certificate and specify the reasons for the denial
- C. issues a conditional Water Supply Certificate with those conditions which the Board deems necessary to ensure fitness, purity, and quantity of the water derived from that private well. Said- conditions may include, but not be limited to requiring treatment or additional testing of the water.

**VI. WELL LOCATION REQUIREMENTS**

Components	Lateral Separation Distance (Feet)
Property, line	10
Driveway or like right-of-way	10
Public roadway = edge of pavement	25
Road right of way	15
Utility right-of-way	100
Projection -from an adjacent building	10
Septic tank	50
Leach facility	100
Privy	100
Building sewer	10
Wetlands	25
Drainage ditch or slough	25
Well	40
Underground fuel tank (excepting propane)	150
Landfill	500
Stump dump	100
Transfer station	250

- (1) Whenever possible, private wells shall be located in areas above the one hundred year floodplain.
- (2) Whenever water supply lines must crass sewer lines, both water supply lines shall be constructed of class 150 pressure pipe and shall be pressure tested to assure water tightness.

**B. Additional Location Requirements**

The Board reserves the right to impose lateral distance requirements from potential sources of contamination not listed above. The Board also reserves the right to increase set-back distances and to impose more stringent conditions for activities and structures listed above. All such special well location requirements shall be listed in writing, as a condition of the well construction permits

The well shall be located as far upgradient of all potential sources of contamination as possible, given the layout of the premises.

Each private well shall be accessible for repair, maintenance, testing and inspection. The well shall be completed in a water bearing formation that will produce the required quantity of water under normal conditions.

## **VII. WELL CONSTRUCTION REQUIREMENTS**

Pursuant to 313 CMR 3.00, no person in the business of digging or drilling shall construct a well unless registered with the Department of Environmental Management/Division of Water Resources. Any work involving the connection of the private well to the distribution system of the residence must conform to the local plumbing code. All electrical connections between the well and the pump controls must be made by a qualified person. All piping between the well and the storage and/or pressure tank in the house including the installation of the pump and appurtenance in the well or house must be made by a pump installer, registered well driller, or licensed plumber.

No private well, or its associated distribution system, shall be connected to either the distribution of a public water supply system or any type of waste distribution system without the use of any backflow prevention device to prevent cross contamination,

A physical connection is not permitted between a water supply which satisfies the requirements of these regulations and another water supply that does not meet the requirements of these regulations without prior approval of the Board.

### **A. General Well Design and Construction**

All private water supply wells shall be designed such that:

1. the materials used for the permanent construction are durable in the specific hydrogeologic environment that occurs at the well site.
2. no unsealed openings will be left around the well that could conduct surface water or contaminated groundwater vertically to the intake portion of the well or transfer water from one formation to another.

Permanent construction materials shall not impart toxic substances, taste, odors or bacterial contamination to the water in the well.

The driller shall operate all equipment according to generally accepted standards in the industry and shall take appropriate precautions to prevent damage, injury or ether loss to persons and property at the drilling site.

Construction site waste and materials shall be disposed of in such a way as to avoid contamination of the well and the aquifer. During any time that the well is unattended, the contractor shall make every reasonable effort to secure the well in such a way as to prevent either tampering with the well or the introduction of foreign material into the well.

All water used for drilling, well development, or to mix a drilling fluid shall be obtained from a source which will not result in contamination of the well or the water bearing zones penetrated by the well.

Water shall be conveyed in clean sanitary containers or water lines and shall be chlorinated. Water from wetlands, swamps, small lakes and .other similar surface features shall not be used.

All drilling fluids shall be nontoxic. Drilling fluid additives shall be stored in clean containers and shall be free of material that may adversely affect the well, the aquifer, or the quality of the water to be pumped from the well.

All wells, including those that have been hydrofractured, shall be developed in order to remove fine materials introduced into the pore spaces or crevices during construction. One or more of the

following methods shall be used for development: over pumping, backwashing, surging, jetting, air-lift pumping.

The completed well shall be sufficiently straight so that there will be no interference with installation, alignment, operation or future removal of the permanent well pump.

#### B. Well Casing

Private water supply wells shall be constructed using either steel or thermoplastic: well casing. The casing shall be of adequate strength and durability to withstand anticipated formation and hydrostatic pressures; the forces imposed on it during installation; and the corrosive effects of the local hydrogeologic environment.

All casing used in the construction of private water supply wells shall be free of pits, breaks, gouges, deep scratches, and other defects. Upon completion of the installation procedure, the entire length of the casing above the intake shall be watertight.

#### C. Well Screen

A well screen is necessary for all drilled wells that are completed in unconsolidated formations. Wells completed in bedrock do not require a screen unless the bedrock is brittle in nature or has a potential for collapse. The well screen aperture openings, screen length, and diameter shall not limit the aquifers' water yielding characteristics while preventing access of soil particles.

#### D. Grouting and Sealing

Private wells drilled in bedrock shall be grouted from the top of the weathered rock face to minimum of (10) feet into competent bedrock.

All wells completed with the casing extending above grade shall have a surface seal designed to eliminate the possibility of surface water flowing down the annular space between the well casing and the surrounding backfilled materials. The grouting seal should remain intact and undisturbed from the elevation of the water line connection down.

#### E. Wellhead Completion

Well casing terminating above-grade shall extend at least twelve (12) inches above the predetermined ground surface at the wellhead, except that when the well is located in a floodplain, the well casing shall extend at least two (2) feet above the level of the highest recorded flood.

Well construction design shall insure that surface water does not enter the well through the opening or by seepage through the ground surface. The applicant shall insure that the grade surrounding the wellhead for a distance at five (5) feet from center shall slope at least 2% to prevent the accumulation of surface water.

### **VIII WATER QUANTITY REQUIREMENTS**

The applicant shall submit to the Board for review and approval a Pumping Test Report. This Report shall include the name and address of the well owner, location of well, giving tax map and lot number and street address, if available; well depth; depth to bedrock when applicable; casing type, size and, when applicable, length into bedrocks; static water level immediately before pumping commenced; date the pump test was performed;; and a demonstration that the well can yield the Required Volume of Water within a twenty-four (24) hour period.

#### A Calculation of the Required Volume of Water

Determine the volume of water necessary to support the household's daily needs using the following equations Multiply the number of bedrooms plus (+) one (1) times (x ) one hundred ten (110) gallons times (x) two (2) {the safety factor} to equal (=) total gallons needed.

Examples 3 (bedrooms) + 1 x 110 (gallons) x 2 = 880 gallons.

A Section II. Amendment to Water Quantity Requirements

(2/1/94) To determine the volume of water necessary to support the daily needs of non-dwelling buildings, use the following equations From the chart below determine water usage estimates for the type at building. Multiply (X) by a safety factor of two (2) which will equal (=) total gallons needed.

EXAMPLE; a three chair barber shop @ 100 gallons per day per chair is 300 X 2 = 600 gallons of water needed daily.

<u>type of establishment</u>	WATER USAGE ESTIMATES
	gallons per person per day
Boarding school/colleges	65
Nursing homes	00
School, without cafeteria or gym	10
School, with cafeteria but gallons per person per day no gym	15
School, with cafeteria and gym	20
Swimming pool	10
Camp, resident, resident with washroom & toilets	25
Camp, resident with mess hall	10
Campground showers and toilets per site	75
Gym, per spectator	25
Gym, per participant	3
Theater, Auditorium	5
Public Park, toilets only	10
Public Park, bathhouse and showers	15
Factory or industrial plant, without cafeteria	23
Factory or industrial plant, with a cafeteria	50
Work or Construction Camp	50
	gallons per day
Tennis club per court	250
Bowling alley per alley	100
Country club dining room per seat	10
Country club snack bar or lunch room per seat	10
Country club lockers and showers per locker	20
Church per seat	3
Church kitchen per person at capacity	50
Mobil Home Park-per site	200
Office building per 1000 square feet	75
Dry Good Store per 100 square feet	5
Drive in per stall	5
Hospital per bed	200
	gallons per seat or chair per day
Restaurant, lounge, or, tavern	35
Restaurant, throughway service area	150
Restaurant, kitchen flow	15
Barber shop/ Beauty salon	100

## B. Pumping Test

The pumping test may be conducted at whatever rate is desired as long as the volume required for a 24 hr. period is removed from the well. At 1 hr. and again at 24 hrs following the pumping of the well, the water level must be measured and recorded. If the water levels between the 1 and 24 hr. levels are not within 1' foot of each other, then a third water level measurement will be taken after a second 24 hr. period. If the well fails to yield the Required Volume within a twenty-four hour period, or if the water level in the well fails to recover, then the well should be, redeveloped, hydrofractured, and/or deepened. After completing these procedures, another pumping test must be conducted.

## **IX. WATER QUALITY TESTING REQUIREMENTS**

A water quality test shall be conducted prior to the utilization of the well for drinking water. The test, using EPA approved methods for drinking water testing and not methods used for analyzing wastewater, shall be conducted by a Massachusetts DEP certified laboratory and shall include analysis for the following parameters:

ANALYSIS	MAXIMUM ACCEPTABLE LIMIT PARAMETER *
arsenic	0.05 mg/L
chlorine	(none given)
total coliform bacteria	pos./neg.
lead	.05 mg/L
nitrogen (nitrate)	10 mg/L
nitrogen (ammonia)	0.1 mg/L
nitrogen (nitrite)	1 mg/L

  

MAXIMUM RECOMMENDED LIMIT	
sodium	28 mg/L
turbidity	5 turbidity unit (NTU)
chloride	250 mg/L
hardness	200 mg/L
iron	0.3 mg/L
PH	Maximum level 8.5    Minimum level 6.5

\*The Board of Health has adopted DEP water quality standards. If testing reveals that maximum acceptable limits are exceeded, then the Board of Health will order remedial action [i.e. filtration or other] in order to maintain limits and secure a water quality certificate pursuant to these regulations.

Following receipt of the water quality test results, the applicant shall submit a Water Quality Report to the Board which includes:

- A. a copy of the certified laboratory's test results
- B. the name of the individual who collected the samples and date of sampling
- C. where in the system the water sample was obtained

The Board reserves the right to require retesting of the above parameters when, in the opinion of the Board, it is necessary due to local conditions or for the protection of the public health, safety, and welfare. All costs and laboratory arrangements for water testing are the responsibility of the applicant.



The Board may choose to collect the water sample or may require that the water sample be collected by the Board's agent or by an employee of the certified laboratory performing the analysis.

The Board reserves the right to require a water quality test immediately following the test for quantity. After the pump is connected and the system is operating, the well shall be disinfected with chlorine, prior to using it as a drinking water supply. The initial chlorine concentration shall be 1000 mg/L throughout the entire water column. The disinfectant solution shall remain, undisturbed, in the well for a minimum of twelve (12) hours prior to flushing it from the system.

The pump contractor shall also disinfect the entire water supply system after any maintenance or repair work is done on the pump.

## **X DECOMMISSIONING REQUIREMENTS**

Abandoned wells, test holes, and borings shall be decommissioned so as to prevent the well, including the annular space outside the casing, from channeling water vertically or otherwise.

The property owner shall be responsible for ensuring that all abandoned wells and test holes or borings are properly plugged by a registered well driller. They shall be completely filled with a grout so as to prevent contamination of a lower aquifer and as protection against personal injury. Notification must be sent to the Board of Health.

In the case of new construction, all test holes and borings shall be plugged before the well contractor completes work at the site.

## **XI ENFORCEMENT**

The Board shall investigate violations of these regulations and/or violations of any Water Supply Certificate conditions, and may take such actions the Board deems necessary for the protection and the enforcement of these regulations, If an investigation reveals a violation of these regulations, or the Water Supply Certificate conditions, the Board shall order the private well owner to comply with the violated provision(s). These orders shall be in writing and served in the following manners:

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

## **XII HEARING**

The private well owner to whom any order has been served may request a hearing before the Board by filing with the Board within seven (7) days after the order was served, a written petition requesting a hearing on the matter. Upon receipt of such petition, the Board shall inform the well owner in writing. The hearing shall commence not later than (30) days after the day in which the order was received. The Board, upon application of the well owner, may postpone the hearing for a reasonable time beyond such thirty-day period in the judgment of the Board the well owner has submitted a good and sufficient reason for such postponement. At the hearing, the well owner shall be given the opportunity to be heard and to show why the order should be modified or withdrawn. After the hearing, the Board shall sustain, modify or withdraw the order and shall inform the well

owner in writing of its decision. 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.

Every notice, order, or other record, prepared by the Board in connection with the hearing shall be entered as a matter of public record in the office of the Board of Health.

If a written petition for a hearing is not filed with the Board within (7) seven days after the order has been served or if after a hearing, the order has been sustained in any part, each days failure to comply with the order as issued or modified shall constitute an additional offense.

### **XIII APPEAL**

Any person aggrieved by the final decision of the Board may seek relief therefrom in any court of competent jurisdiction, as provided by the laws of this Commonwealth.

### **XIV PENALTIES**

Any person who violates any provision of these regulations, or who fails to comply with any order by the Board , for which a penalty is not otherwise provided in any of the General Laws, shall upon conviction be fined not less than ten (10) nor more than five hundred (500) dollars. Each day's failure to comply with an Order shall constitute a separate violation.

### **XV VARIANCE**

The Board may, after a public hearing, grant a variance to the provisions of these regulations, when, in its opinion, the enforcement thereof would do manifest injustice.

Every request for a variance shall be made in writing and shall state the specific variance sought and the reasons therefore.

When the applicant is seeking a variance from distance requirements, and the Board of Health deems that a potentially impacted abutter may be affected by said variance, he shall also submit proof that all abutters have been notified of his intention and the date of the hearing.

any granting or denial of a variance shall be in writing and shall contain a brief statement of the reasons far 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 Board of Health.

Any variance may be subject to such qualification, revocation, suspension, condition or expiration as is provided in these regulations or as the Board expresses in its grant of the variance. A variance may otherwise be revoked, modified or suspended, in whole or in part, only after the holder thereof has been notified in writing and has been given an opportunity to be heard, pursuant to Section XI of these regulations.

### **XVI SEVERABILITY**

If any specific portion of these regulations shall be declared invalid for any reason whatsoever, that decision shall not affect any other portion of these regulations, which shall remain in full force and effect, and to this end the provisions of these regulations are hereby declared severable.

### **XVII EMERGENCIES**

No provision of these regulations shall be construed as a limitation on the emergency powers of the Belchertown Board of Health or its officers as provided for by law.

### **XVIII EFFECTIVE DATE**

These regulations were adopted by vote at the Belchertown, Massachusetts Board of Health, at their regularly scheduled meeting held on February 7, 1994 and are to be in full force and effect upon publication of a summary in one or more newspapers of general circulation within Belchertown. Copies of these regulations shall be on file in the Board of Health Office. These regulations or any portions thereof may be amended, supplemented or repealed from time to time by the Board, with notice as provided by law, on its own motion or by petition.

### **XIV DISCLAIMER**

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

### Regulation Amendment

By the authority of MGL General Chapter 111, section 31, 122, and 127A, the Belchertown Board of Health voted and hereby orders the following changes to the Town of Belchertown's "Regulations for Private Wells", to be effective immediately upon publication:

Section IV A 3 is amended to read as follows:

"A plan with a specific scale, signed by a professional engineer, registered sanitarian, or professional land surveyor, showing the location of the proposed well in relation to the items listed in IV A 5 and 6."

All other language of Section IVA3 is stricken.

By vote of the Belchertown Board of Health on this date January 8. 2007

Gail Gramarossa, Chairman  
Roger Bonsall  
Gary Racicot  
Sean Cleary