



## Orange Board of Health

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# Private Well Regulations

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### **I. PURPOSE**

The purpose of this regulation is to provide for the protection of the public health, safety, and general welfare of the environment by, among other things, requiring the proper construction, testing, and decommissioning of private wells, and to provide for the protection of the Town of Orange's groundwater resources.

### **II. AUTHORITY**

These regulations are adopted by the Orange Board of Health, pursuant to its authority under Massachusetts General Laws, Chapter 111, Section 31, 122, 122A, 127, 143, 155, 187, and 188; 310 CMR 11.02: "boards of health may make responsible health regulations," and MGL C40 S54 requires that "no building permit be issued to a property without a potable water supply. Water Supply Officials are responsible for regulating and monitoring public water" and that "the regulation of private wells is the responsibility of local boards of health." These regulations supersede all previous Regulations for Private Wells adopted by the Orange Board of Health.

### **III. DEFINITIONS**

Agent: Any person designated and authorized by the Orange Board of Health to implement, in whole or part, these regulations. To the extent provided by the Board, 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 applies 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 the Town of Orange, 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 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: A laboratory certified by the Department of Environmental Protection for the analysis of drinking water and required water quality analyses. Provisional certification is acceptable.

Certified Well Driller: Any person certified with the Department of Environmental Protection Well Driller Program to dig or drill wells in the Commonwealth of Massachusetts.

Closed-Loop Geothermal Borehole: A boring drilled to facilitate the installation of a pipe loop or tubing for a ground source heat pump system whether circulating water, heat transfer fluid or refrigerant using direct exchange.

Geothermal Well: Any shaft or hole drilled into the surface of the earth, greater than 20 feet in depth, which is used or intended to be used in connection with coring, or the drilling for, prospecting for, or the production of geothermal resources, hot water, petroleum, natural gas, or other hydrocarbon substances, or shallow extraction wells for heating, agricultural or other purposes, or is used or intended to be used for the subsurface injection into the earth of oilfield waste, gases, water or liquid substances, including any such existing hole, shaft or casing which has not been abandoned, except that "geothermal, oil or gas exploratory or development well" shall not include "temporary exploratory probe," as defined in this section.

Irrigation well: Well used for the sole purpose of watering or irrigation. The well shall not be connected at any tie to a dwelling or a building unless they meet the requirements of a Private Drinking Water Well and have the Board's written approval.

MassDEP: Massachusetts Department of Environmental Protection,

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

Private Drinking Water Well: Any dug, driven, or drilled hole, with a depth greater than its largest surface diameter constructed or used to supply water for human consumption that is not regulated by 310 CMR 22.00

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

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

Structure: 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.

Unless the context requires otherwise, words not herein defined shall have the same meaning as given in the applicable regulations of the Department of Environmental Protection (DEP)

The following are not wells for the production of water as used in these regulations:

1. Post holes;
2. An excavation for the purpose of obtaining or prospecting for oil, natural gas, minerals other than water, products of mining and quarrying;
3. Injection well regulated under DEP UIC program;
4. Cathodic protection wells;
5. Wells used for dewatering purposes in construction work;
6. Monitor wells, geographical test borings and piezometers;
7. Ponds, pits, sumps and drainage trenches;
8. Contaminant recovery wells otherwise regulated by the DEP; and
9. Closed-loop geothermal boreholes.

#### **IV. WELL CONSTRUCTION PERMIT**

A Massachusetts Certified Well Driller shall obtain a permit from the Board of Health prior to the commencement of construction of a private well.

The property owner or his designated representative shall obtain a permit from the Board of Health or its agent prior to the commencement of construction and/or deconstruction of a private well, nonessential private well, irrigation well, monitoring well, hydrogeological well, heating and cooling well, agricultural well, drilled holes, bore holes, or other holes drilled by mechanical means greater than 10 feet, and any other structure that is considered a well.

Each permit application to construct a well shall include the following:

1. The property owner's name and address
2. The well driller's name and proof of valid Massachusetts certification
3. A plan with a specified scale, signed by a registered surveyor or engineer, showing the location of the proposed well in relation to existing or proposed above or below ground structures.
4. A description 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. subsurface fuel storage tanks
  - d. public and private ways
  - e. utility rights-of-way
  - f. any other potential sources of pollution
5. Applicable permit fee

All well permit applications are subject to the review of the Town of Orange Water Department prior to issuance.

All irrigation and agricultural wells shall post a durable sign (8 inches by 12 inches) notifying the public that it is in fact an "irrigation well in use."

The permit shall be on site at all times that work is taking place. Each permit shall expire one (1) year from the date of issuance unless revoked for cause, or extended. Permits may be extended for one additional six (6) month period

provided that a written explanation for the request is received by the Board prior to the one year expiration date. No additional fee shall be charged for an extension, provided there is no change in the plans for the proposed well. After the permit has expired a new application and a new application fee must be submitted.

Well Construction Permits are not transferable.

#### **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. A Water Supply Certificate must be issued for the use of a private well prior to the issuance of an occupancy permit for an existing structure or prior to the issuance of a building permit for new construction which is to be served by the well.

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

1. A well construction permit
2. A copy of the Water Well Completion Report as required by MassDEP Well Driller Program regulations (310 CMR 46)
3. A copy of the Pumping Test Report required pursuant to Section VII of these regulations
4. A copy of the Water Quality Report required pursuant to Section VIII of these regulations

Upon the receipt and review of the above documents, the Board shall make a final decision on the application for a Water Supply Certificate. A final decision shall be in writing and shall comprise one of the following actions:

1. Issue a Water Supply Certificate
2. Deny the applicant a Water Supply Certificate and specify the reasons for the denial.
3. Issue 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. These conditions may include, but not be limited to, requiring treatment and/or additional testing of the water.

#### **VI. WELL LOCATION**

In locating a well, the applicant shall identify on a plan all potential sources of contamination which exist or are proposed within two hundred (200) feet of the site. The well shall be located upgradient of all potential sources of contamination and shall be as far away from potential sources of contamination as possible, given the layout of the property.

Each well or bore hole 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 operating conditions.

No well shall be permitted for use as a potable water source unless it meets the following setback requirements:

<b>Required Setbacks for Wells (measured in feet)</b>		
	<b>Private Drinking Water</b>	<b>Irrigation Only</b>
Defined Property Line	25	25
Public/private way (from defined property line)	50	50
Subsurface sewage disposal field (in use, abandoned or reserve area)	100	100
Cesspool – seepage pit	100	100
Septic tank	50	50
Sewer line with watertight joints	25	25
Subsurface fuel storage tank	100	100
Driveways	15	15
Swamps, marshes, wetlands, floodplains, brooks, streams, ponds,	25	25

<i>lakes, or seasonal streams NOTE: This distance shall be measured laterally from the high-water mark or wetland determination bound. Any work proposed in a wetland buffer zone requires permission of the local Conservation Commission prior to issuance of a permit to construct a well.</i>		
Dwelling or other structure	25	25
Surface or subsurface drains	25	25
Utility right-of-way	100	100
Gas line or overhead electric distribution line	25	25
Stables, barnyards, feedlots, manure piles, manure storage tanks	100	100

The Board reserves the right to impose minimum setback requirements from other potential sources of contamination not listed above. All such additional setback requirements shall be listed, in writing, as a condition of the well construction permit.

Each private well shall be located so that it is accessible for repair, maintenance, testing, and inspection. The well shall be completed in a water-bearing formation that will produce the required volume of water under normal operating conditions.

Water supply lines shall be installed at least ten (10) feet from and eighteen (18) inches above any sewer line. Whenever water supply lines must cross sewer lines, both lines shall be constructed of Class 150 pressure pipe and shall be pressure tested to assure water-tightness.

No private well, or its associated distribution system, shall be connected to either the distribution system of a public water supply system or any type of waste distribution system.

## **VII. WATER QUANTITY and PUMPING TEST**

Each well must supply an adequate quantity of water for the purpose for which it is intended and shall be tested to give satisfactory evidence of continuing capability to do so. Before being approved, every well shall be pump tested by the installer. The results of the test shall be submitted to the Board of Health on the previously described Well Completion Report, and the Board shall maintain such as a public record. The following are guidelines for what will be considered satisfactory, but the Board of Health may vary these guidelines in particular cases where it is demonstrated that the well will furnish an adequate supply of water for the purpose for which it was intended.

Shallow wells, washed wells, points, pits or excavations are not allowed because they are easily contaminated. The Board may grant a variance for shallow wells, washed wells, points, pits or excavations for irrigation purposes or when a drilled well cannot be utilized. Where a variance has been granted for drinking water supply, shallow wells, washed wells, points, pits or excavations shall produce a minimum of 15 gallons per minute after performing a four-hour pump test. Wash wells must be tested every six months and the results submitted to the Board of Health office. No shallow wells will be allowed in a primary water or secondary water resource district as designated under the Zoning Bylaw, with exceptions for agriculture and/or business when deemed appropriate by the Board.

After pump testing, all drilled wells shall produce at least the following gallons per minute:

Static Water Depth in Well (feet)	Required Yield (gallons per minute)
100	6
200	5
300	4
400	3
500	2

If the water depth is above a stated level shown on the chart above, then the next highest required yield shall be used.

#### **VIII. IRRIGATION WELLS**

Irrigation wells shall be deep wells (bedrock; one-hundred-foot minimum deep well).

To prevent cross-connection of potable and nonpotable water supplies, no dwelling shall be served in any capacity by both a private well and the Town of Orange's public water system unless the two water systems are separate. In addition to such a complete separation, a backflow protection device, approved by the plumbing inspector and the public water supplier, must be installed in the dwelling to prevent backflow and cross-connections with the Town's public water supply.

Irrigation wells shall provide water through sprinkler heads or through spigots mounted on the well head. The Board of Health prohibits the use of sillcock spigots for irrigation wells.

Conversion of a preexisting drinking water well to an irrigation well shall require permitting and approval by the Orange Board of Health.

#### **IX. GEOTHERMAL WELLS**

Location of closed-loop geothermal boreholes:

The construction of a closed-loop geothermal borehole is prohibited at other than a safe distance from any potential source of contamination. The minimum safe distances shall apply for the sources listed below:

##### **Minimum Distances**

Source of Structure	Minimum Lateral/ Circumferential Distance (feet)
Sewer lines	10
Septic tanks	25
Springs	100
Septic drain fields	50
Water wells	100
House to septic tank connection	10
House to sewer line connection	10

Source of drilling water for closed-loop geothermal boreholes:

1. All water used in drilling and construction of a closed-loop geothermal borehole shall be from a public water supply or water well.
2. All water used in the drilling or construction process shall be treated with enough chlorine product to retain a free chlorine residual of at least 10 parts per million.
3. The driller shall take all steps necessary to maintain safety around the borehole until the closed loop is installed and grouted in the borehole.

## X. WATER QUALITY TESTING

After the construction of the well has been completed and disinfected, and prior to using it as a private drinking water well, baseline water quality testing shall be conducted.

A water sample shall be collected either after purging three (3) well volumes or following the stabilization of the pH, temperature and specific conductance in the pumped well. The water sample to be tested shall be collected at the pump discharge or from a disinfected tap in the pump discharge line. In no event shall a water treatment device be installed prior to sampling.

Water quality testing, utilizing the applicable US EPA approved method for drinking water testing, shall be conducted by a Massachusetts certified laboratory and shall include analysis for the following parameters:

Arsenic  
Chloride  
Copper  
Fluoride  
Hardness  
Iron  
Lead  
Manganese  
pH  
Sodium  
Total Coliform bacteria  
E. coli bacteria  
Nitrate/Nitrite

In wells drilled into bedrock the Board requires that in addition to the parameters listed above, a Gross Alpha Screen and Radon test be performed. If the Gross Alpha screen detects radiation of 15 pCi/l or more, then the water must be analyzed for Radium and Uranium concentrations.

The owner of every well used for drinking water serving a property which is rented or leased shall have its water tested at a Massachusetts certified laboratory for the following chemical and bacteriological parameters at a minimum of once a year: total coliform bacteria, e. coli bacteria, nitrate, nitrite, pH, conductivity, sodium, and iron. All other required chemical parameters should be tested at a minimum of every ten (10) years. The Board may require more frequent testing, or testing for additional parameters, where other water quality problems are known or suspected to exist.

The owner of a rental property shall make results of all water quality tests available to all tenants of the property and the Board of Health. In cases where the well water does not meet the water quality standards outlined above, the Board of Health may require the property owner to provide an alternative approved source of drinking water for the tenants.

Prior to selling, conveying, or transferring title to real property, the owner shall have tested the water of every private drinking water well serving that property. A water sample from each well shall be submitted to a Massachusetts certified laboratory for testing for the parameters listed in the Water Quality section of this document. This water quality testing

shall have been performed not more than one (1) year prior to transfer of the property. Results of the water quality testing shall be submitted to the Board of Health prior to property transfer.

For irrigation wells, the Board requires annual testing for E. coli bacteria and Nitrate/Nitrite, as accidental consumption could result in acute exposure.

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

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

1. A copy of the certified laboratory's test results
2. The name and contact information of the individual who performed the sampling
3. Where in the system the water sample was obtained

This regulation requires that private drinking water wells meet all current Massachusetts Primary and Secondary Drinking Water Standards and Guidelines adopted by the MassDEP Office of Research and Standards (ORS). In any case where a private drinking water well does not meet such Standards or Guidelines, as it deems necessary for the protection of public health, safety, or welfare, that the Board may take action, but not limited to, requiring the property owner to provide an alternative source of drinking water.

## **XI. WELL CONSTRUCTION**

Pursuant to 310 CMR 46.02 (1), no person in the business of digging or drilling shall construct a well unless certified by the MassDEP Well Drillers Program.

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 and all piping between the well and the storage and/or pressure tank in the house must be made by a pump installer or certified well driller, including the installation of the pump and appurtenance(s) in the well or house.

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.

Well construction, well casing, well screen, grouting and sealing, well completion, and all equipment shall comply with the requirements set forth in the most current MA DEP Private Well Guidelines.

## **XII. DISINFECTION**

Upon completion of well construction, the well driller shall disinfect the well. If a pump is to be installed immediately upon completion of the well, the pump installer shall disinfect the well and the pumping equipment after the pump has been installed.

If the pump is not installed upon completion of the well, the pump installer shall, upon installation, disinfect the well and the pumping equipment. The pump installer shall also disinfect the entire water supply system immediately after any maintenance or repair work is done on the pump.

When a well is disinfected, the initial chlorine concentration shall be 100 mg/l throughout the entire water column.

For newly constructed or altered wells in which the pump is not immediately installed, the chlorine concentration used to disinfect the well shall be 100 mg/l. Upon installation of the pump, the well, the pumping equipment, and the distribution system, if connected, shall be disinfected with a chlorine concentration of 100 mg/l.

The disinfectant solution shall remain undisturbed in the well for a minimum of two (2) hours. After all the chlorine has been flushed from the water supply system, a water sample shall be collected and submitted to a Massachusetts certified laboratory. For new wells, the sample shall be tested pursuant to Section VI of these regulations.

Only certified well drillers are authorized to physically alter or repair a well. For wells, that have undergone repair, a sample shall be tested for total coliform bacteria and any other parameters deemed appropriate by the Board, prior to being put back in use.

### **XIII. DECOMMISSIONING**

A well that is abandoned shall be destroyed to protect the groundwater and to eliminate potential physical hazards. Wells shall be sealed with nonhazardous, impervious materials which shall be permanently in place. All casing materials, pumping equipment, and distribution lines shall be removed. The excavation shall be returned to the current existing grade of the surrounding land. A record of abandonment shall be kept on file in the office of the Board.

Abandoned wells, test holes, or borings shall be decommissioned so as to prevent the well, including the annular space outside the casing, from being a channel allowing the vertical movement of water, and to eliminate potential physical hazards.

The owner of a private well shall decommission the well if any of the following criteria are met:

1. Construction of the well is terminated prior to completion of the well
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 three (3) years
4. The well is a potential hazard to public health or safety and the situation cannot be corrected
5. The well is in such a state of disrepair that its continued use is impractical or unsafe
6. The well has the potential for transmitting contaminants from the land surface into an aquifer or from one aquifer to another and the situation cannot be corrected

Abandoned wells, test holes, or borings shall be either:

- A. Sealed with non-hazardous impervious materials that shall be permanently in place with all exposed casing materials, pumping equipment, and distribution lines removed with the excavation returned to the existing grade of the surrounding land OR,
- B. Sealed with a welded cap so as to prevent surface water or contaminants from entering the well

The property owner shall ensure that all abandoned wells and test holes or borings associated with the well installation are properly plugged before work at the site is completed. Only certified well drillers may plug abandoned wells, test holes, and borings.

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

For each private well destroyed after the effective date of these regulations, the owner shall comply with the following requirements:

1. A well destruction permit application.
2. A well destruction permit.
3. A well driller's or digger's report of destruction.

*All Well decommissioning shall be performed according to the most current MA DEP Private Well Guidelines.*

**XIV. ENFORCEMENT**

The Board has authority to investigate suspected or known violations of these regulations and/or violations of any Water Supply Certificate conditions. 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 this regulation.

If any investigation reveals a violation of these regulations or the Water Supply Certificate Conditions, the Board may order the private well owner to comply with the violated provision(s), and/or 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 civic 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 premises 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.

**XV. 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 day 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.

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 clerk of the city or town, or in the office of the Board.

If a request for a hearing is not filed with the Board within seven (7) days after the day an Order has been served or if after a hearing, the Order has been sustained in whole or any part, each day's failure to comply with the order as issued or sustained shall constitute a separate violation.

**XVI. APPEAL**

Any person aggrieved by the final Order, Variance, Well Construction Permit, or Certificate of Water Supply determination of the Board may appeal to any court of competent jurisdiction as provided by the laws of the Commonwealth.

**XVII. PENALTIES**

Any person who violates any provision of these regulations, or who fails to comply with any final Order of the Board, for which a penalty is not otherwise provided in any of the Massachusetts 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 a final Order or any provision of this regulation shall constitute a separate violation.

#### **XVIII. VARIANCE**

The Board may, grant a variance to any provision of this regulation 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 strict application of the particular provision(s) sought to be varied.

Every request for a variance shall be in writing shall state the specific provision of this regulation from which 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. No application for a variance shall be complete until the applicant has notified all abutters by certified mail at his/her own expense at least ten days before the Board of Health meeting at which the variance request will be on the agenda. The notice shall include at a minimum: the name and address of the applicant, 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.

The Board may issue a variance subject to such conditions as it deems necessary to 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 XI of these regulations.

#### **XIX. SEVERABILITY:**

If any provision of these regulations or the application thereof 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. Any part of these regulations subsequently invalidated by a new state law or modification of an existing state law shall automatically be brought into conformity with the new or amended law and shall be deemed to be effective immediately, without recourse to a public hearing and the customary procedures for amendment or repeal of such regulation.

#### **XX. DISCLAIMER**

The issuance of a well permit shall not be construed as a guarantee or certification by the Board or its agents that the water system will function satisfactorily or that the water supply will be of sufficient quality or quantity for its intended use.

#### **XXI. AMENDMENTS**

These regulations or any portion 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.

#### **XXII. EFFECTIVE DATE**

These regulations were adopted on August 3<sup>rd</sup> 2021 and became effective immediately.

 Patricia Pierson

 Jane Peirce

 Josefa Scherer