

MEDFORD BOARD OF HEALTH

Regulation 10: Well Installation, Use and Maintenance for Private Wells

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I. PURPOSE

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

II. AUTHORITY

These regulations are adopted by the Medford Board of Health, as authorized by Massachusetts General Laws, Chapter 111, Section 31. These regulations supersede all previous regulations adopted by the Board of Health pursuant to the construction of private wells.

III. DEFINITIONS

Abandoned water well: 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, after extended use, been permanently discontinued, (3) the well has been out of service for at least three 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 (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.

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 the Board and under its direction and control.

Alteration: A major change in the type of construction or configuration of a private water system, including but not limited to, adding a disinfecting or treatment device, converting a water well with a buried seal to a well with a pitless adapter, extending a distribution system, converting a well using a well pit to a well with a pitless adapter, extending the casing above ground; deepening a well, changing the type of pumping equipment when that requires making new holes or sealing or plugging existing holes in the casing or wall of a well, and repairing, extending or replacing any portion of the inside or outside casing or wall.

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 Medford, 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 currently certified by the Department of Environmental Protection for drinking water. Provisional certification shall also qualify.

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 by 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/Office of Water Resources to dig or drill wells in the Commonwealth of Massachusetts.

Right of Way (ROW): Any roadway or thoroughfare on which public passage is made, and any corridor of land over which facilities such as railroads, pipelines, powerlines, conduits, channels, or communications lines are located.

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.

IV. PROHIBITIONS

1. No Potable Drinking Wells are to be used for Drinking Water.
2. Dug wells are prohibited, as these types of wells are shallow making them especially susceptible to contamination and to the vagaries of seasonally fluctuating water tables.
3. Surface water supplies for private water shall be prohibited.
4. 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 public sewer or waste distribution system.
5. Prohibited connections: per 248 CMR 2.20, "under no circumstances shall piping systems be designed and constructed as to permit pool water to enter a potable water supply system, nor waste water or sewage to enter the pool through backflow connections or interconnections.

Cross-connections or interconnections in the pool piping system whereby pool water may under some conditions enter a potable water supply system should be avoided.

- a. by providing for the admission of make-up water above the overflow elevation of the pool or by pumping from a pump suction well;
- b. where filters are installed and filter washing with the recirculation pump is not feasible, a washwater pump of proper capacity should be installed and a section well or small elevated tank used to supply water to the pump, the discharge to the suction well or tank being above the flow line. In no case should valved cross-connections, whereby water from a potable water supply may be admitted directly to the recirculation system for the purpose of filter washing, be permitted. No pool drains or drains from filters, where the recirculating system is used, should be directly connected to sewers. Such drains should discharge by an indirect connection to a properly trapped sump. Where such indirect connections are not possible, pumping of pool and filter-wash drainage may be necessary. "

V. ALLOWED WELL USE

1. Wells are allowed for irrigation. A well used to irrigate gardens where fruit and vegetables are grown will have to meet potable standards.

2. Wells may be used for the filling of Swimming Pools, but these must meet potable water standards.

VI. WELL CONSTRUCTION PERMIT

No well shall be constructed, altered or repaired until a well construction permit has been obtained from the Board of Health.

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 application to construct a well shall include the following:

- 1) The Medford Board of Health requires a \$ 100.00 non-refundable and non-transferable application fee for a well construction permit. No cash will be accepted. A check or money order payable to the City of Medford is required. A fee of \$25.00 shall be charged for an extension of six (6) months.
- 2) the property owner's name and address
- 3) the well driller's name and proof of valid state registration
- 4) Assessor's lot and plan # for the lot and the street address of the proposed well.
- 5) 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.
- 6) a description of visible prior and current land uses within five hundred (500) 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, including old cesspools and septic systems
 - c) subsurface fuel storage tanks
 - d) public ways
 - e) utility rights-of-way
 - f) water lines
 - g) sewer lines
 - h) lot lines
 - i) surface and subsurface drains, including dry wells
 - j) any other potential sources of pollution.
- 7) proof that the owner of any property abutting the applicant's property has been notified of the applicant's intention to install a well.

The permit shall be on site at all times that work is taking place. Each permit shall expire six months from the date of issuance unless revoked for cause. Permits may be extended for one additional six (6) month period provided that a written request is received by the Board prior to the six month expiration date. An additional fee of \$25.00 shall be charged for a permit extension, provided there is no change in the plans for the proposed well.

Well Construction Permits are not transferable.

No well shall be installed, altered, repaired, destroyed or abandoned except by a well driller who is registered with the Water Resources Commission, Division of Water Resources under MGL Chapter 21, Section 16, and 313 CMR 3.00.

All wells shall be located on the same lot they serve.

The Board will not grant a construction permit without approval and follow-up inspection from the Plumbing Inspector and the City Engineer.

VII. WATER SUPPLY CERTIFICATE

The issuance of a Water Supply Certificate by the Board shall certify that the private well may meet potable water standards use. 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.

CATEGORY 1: SETBACK REQUIREMENTS

<u>Potential Contamination</u>	<u>Source Minimum Lateral Distance</u>
Subsurface sewage disposal system leaching area, cesspool, seepage pit	150 feet
Subsurface sewage disposal system leaching reserve area	150 feet
Septic tank	50 feet
Municipal sewers, building sewer	50 feet

CATEGORY 2: MINIMUM SETBACK REQUIREMENTS

<u>Component</u>	<u>Minimum Lateral Distances</u>
Property Line	10 feet
Rights-of Way	25 feet
Swimming Pools	20 feet
Subsurface Drains	25 feet
Watercourse, Stream or Wetland	50 feet

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 the DEM Office of Water Resources (313 CMR 3.00) within thirty (30) days after completion of construction of any well.
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. Said conditions may include but not be limited to requiring treatment or additional testing of the water.

VIII. WELL LOCATION AND USE REQUIREMENTS

In locating a well, the applicant shall identify all potential sources of contamination which exist or are proposed within five hundred (500) feet of the site. When possible, the well shall be located upgradient of all potential sources of contamination and shall be as far removed from 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 operating conditions.

Each private well shall be located at least ten (10) feet from any property line. The centerline of a well shall, if extended vertically, clear any projection from an adjacent structure by at least five (5) feet.

All private wells shall be located a minimum of 25 feet from the normal driving surface of any public roadway or a minimum of 15 feet from the road right-of-way, whichever is greater.

Each private well shall be located at least 25 feet, laterally, from the normal high water mark of any lake, pond, river, stream, ditch, or slough. Private water systems shall be located in areas above the 100-year flood plain.

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

The Board of Health may determine that an auxiliary power supply must be available to maintain a water supply.

IX. WATER QUANTITY REQUIREMENTS

The applicant shall submit to the Board for review and approval a Pumping Test Report. The Pumping Test Report shall include the name and address of the well owner, well location referenced to at least two permanent structures or landmarks, date the pumping test was performed, depth at which the pump was set for the test, location for the discharge line, static water level immediately before pumping commenced, discharge rate and, if applicable, the time the discharge rate changed, pumping water levels and respective times after pumping commenced, maximum draw down during the test, duration of the test, including both the pumping time and the recovery time during which measurements were taken, recovery water levels and respective times after cessation of pumping, and reference point used for all measurements.

The grade above and adjacent to the well shall slope at least 2% to prevent the accumulation of surface water. Provisions shall be made to minimize the flow of surface water over the area of the well.

1. A pump test will be performed at a rate equal to the quantity of water required by design. The pump shall be operated continuously until a static level is determined.
2. Every well used as a potable supply shall supply a sufficient quantity of water to meet the ordinary needs of the users, and shall yield a minimum of two gallons per minute after a four hour pump test.
3. All demands for water shall be provided from storage in a pressure tank.
4. A well log shall be furnished to the Board of Health and filed for public record with the Board of Health office. The well log shall include as a minimum:
 - a. well depth
 - b. log of well lithology
 - c. static water level
 - d. pump test static level
 - e. well yield
 - f. depth of casing.
5. Disinfection requirements:

Upon completion of construction, rehabilitation, or pump repair, the well shall be disinfected with a solution containing at least 100 ppm available chlorine. The well shall remain in contact with the chlorine solution for a minimum of 24 hours.

X. WATER QUALITY TESTING REQUIREMENTS

After the well has been completed and disinfected in accordance with instruction from US Environmental Protection Agency Manual of Individual Water Supply Systems, and prior to using it as a potable water supply, a water quality test shall be conducted.

A water sample shall be collected either after purging three 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. 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 lab performing the analyses.

The water quality test, utilizing an applicable US EPA approved method for drinking water testing shall be conducted by an EPA or Massachusetts certified laboratory and shall include analysis for the following parameters and the results shall not exceed Massachusetts drinking water standards for public water supplies:

PARAMETER MAXIMUM ACCEPTABLE LIMIT REQUIRED:

Total Coliform Bacteria	0/100 ml
Fecal Coliform	Absent
Arsenic	0.010mg/L (MA DEP Drinking Water Program 6/10/03)
Copper	1.3 mg/L
Iron	0.3 mg/L
Lead	0.015 mg/L
Manganese	0.05 mg/L
Mercury	0.002mg/L
Nitrogen (Nitrate)	10 mg/L
Sodium	20 mg/L
Turbidity	1 Turbidity Unit
pH	6.5 - 8.5
Odor Threshold number	3
Color	15 Color units
Methyl Tertiary Butyl Ether (MTBE)	0.07 mg/L
Hardness	200 mg/L
Sodium	20 mg/L
Petroleum Hydrocarbons:	
TPH	0.2 mg/L
Aliphatics	
C5-C8	0.4 mg/l
C9-C12	4.0 mg/l
C9-C18	4.0 mg/l
C19-C36	40.0 mg/l
Aromatics	
C9-C10	0.2 mg/l
C11-C22	0.2 mg/l

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

- 1) a copy of the certified laboratory's test results
- 2) the name of the individual who performed the sampling
- 3) where in the system the water sample was obtained

Additional chemical and physical analyses, including testing for volatile organic compounds (EPA 624), herbicides, pesticides, and any additional parameters may be required, as well as re-testing of the above parameters, when, in the opinion of the Board, it is necessary because of local conditions or for the protection of the public health, safety and welfare. All costs and laboratory arrangements and procedures for the water testing are the responsibility of the applicant.

The Board reserves the right to require re-testing 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 the public health, safety and welfare. All costs and laboratory arrangements for the water testing are the responsibility of the applicant.

Following the initial water quality test for a new well the Board requires that the applicant or owner of the property on which the well is located to have the water tested annually, unless a variance is granted by the Board.

The Board requires that a water quality test be conducted prior to any time the property on which the well is located changes ownership. The well must be reregistered under the new owner's name and address.

XI. 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/Office 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 and all piping between the well and the storage and/or pressure tank in the house must be made by a pump installer or registered well driller, including the installation of the pump and appurtenance in the well or house.

A. Disinfection

Upon completion of well construction, the well contractor shall disinfect the well. If a pump is to be installed by the well contractor immediately upon completion of the well, the contractor 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 contractor shall, upon installation, disinfect the well and the pumping equipment. The pump contractor shall also

disinfect the entire water supply system 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, disinfection of the well, the pumping equipment, and the distribution system, if connected, shall be accomplished 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 state certified laboratory. For new wells, the sample shall be tested pursuant to Section VI of these regulations. For wells that have undergone repair, the sample shall be tested for coliform bacteria and any other parameters deemed appropriate by the Board.

XII. 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 being a channel allowing the vertical movement of water.

The owner of the private well shall decommission the well if the well meets any of the following criteria:

- 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 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 it's continued use is impractical
- 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.
- 7) The well is not the primary source of potable water and municipal water is available to provide a source of potable water.
- 8) The well has not been used within one year of installation.
- 9) The requirements of this regulation have not been met to the satisfaction of the Board.

The property owner shall be responsible for ensuring that all abandoned wells and test holes or borings associated with private well installation are properly plugged. Only registered 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.

XIII. REGISTRATION OF OLDER WELLS

Private wells installed prior to the adoption of these regulations must be registered with the Board, on a form provided by the Board specifically for the registration of wells.

As a minimum, registration of a well will provide the name of the owner of the property, the street address, and the assessor's map and lot number.

XIV. ENFORCEMENT

The Board shall investigate violations of these regulations and/or violations of any Water Supply Certificate conditions and may take such actions, as the Board deems necessary for the protection of the public health and the enforcement of these regulations.

If any 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 provisions(s).

These orders shall be in writing and served in the following manner:

- (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 consecutive days in one or more newspapers of general circulation within the municipality wherein the private well affected is situated.

XV. 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 7 days after the day the order was served, a written petition requesting a hearing on the matter. Upon receipt of such petition, the Board shall set a time and place for such hearing and shall inform the well owner thereof in writing. The hearing shall be commenced not later than 30 days after the day on which the order was served. The Board, upon application of the well owner, may postpone the date of hearing for a reasonable time beyond such 30-day period if 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 an opportunity to be heard and 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 modified the original order, it shall be carried out within the time period allotted in the original order or in the modification.

protected. Notice of the hearing shall be given by the Board, at the applicant's expense, at least ten (10) days prior thereto, by certified mail to all abutters of the property upon which the private well is located and by publication in a newspaper of general circulation in the town or city in which the private well is located. The notice shall include a statement of the variance sought and the reasons therefor. Any grantor 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 City 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.

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.

XVIII. 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.

XIX. 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.

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