

**GUIDELINES FOR THE IMPLEMENTATION AND ENFORCEMENT OF BOSTON
PUBLIC HEALTH COMMISSION REGULATIONS FOR INDUSTRIAL, IRRIGATION
AND HUMAN CONSUMPTION WATER WELLS**

APPROVED:



Monica Valdes Lupi

Executive Director

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SECTION I. PURPOSE

The Boston Public Health Commission has determined that installation and operation of certain types of water wells within the city of Boston present a potential risk to the health of the public from chemical and microbiological exposures if not properly regulated and overseen. These guidelines are promulgated to set forth the implementation and enforcement procedures of the Boston Public Health Commission's Regulations for Industrial, Irrigation, and Human Consumption Water Wells (hereinafter "Regulation").

SECTION II. DEFINITIONS

1. Commission means the Boston Public Health Commission, the Board of Health of the Boston Public Health Commission, and/or any authorized agent thereof.
2. Permit means a written document as prescribed and issued by the Commission granting approval to an applicant wishing to construct a well or a well owner seeking to use his/her well within the City of Boston. Three types of permits may be required for a well in Boston:
 - a. Well Construction Permit – this permit must be applied for and granted prior to beginning construction on any new well of any covered type in the City of Boston. This is a one-time permit issued for the construction of a single well.
 - b. Annual Well Use Permit – this permit must be applied for and granted in order to operate a well of any type.
 - c. Annual Water Supply Certificate – this certificate is required only for wells intended to provide water for human consumption and is applied for in conjunction with the Well Use Permit.
3. Well means all installations constructed by digging, drilling, driving, or otherwise to access water below the ground surface or to pump water or other liquids into/out of the ground. For purposes of the regulation and these guidelines, covered well types include industrial, irrigation, geothermal, or human consumption water wells. Monitoring wells, construction site dewatering wells, groundwater recharging wells, and hazardous materials recover wells are exempt.
 - a. Geothermal Well - any type of well constructed for the purposes of using the ambient temperature of the earth beneath the surface to heat or cool water or other fluids as part of the heating, ventilation, and air conditioning system of a building.

- b. Human Consumption Water Well – any type of well constructed for the purpose of extracting sub-surface water for use as potable water either directly (drinking water) or in the preparation of beverages or food.
- c. Industrial Well – any type of well constructed for the purpose of extracting groundwater for use in an industrial process such as cleaning or washing, for use in manufacturing, or for cooling equipment.
- d. Irrigation Well – any type of well constructed for the purpose of extracting ground water to water vegetation – trees, grass, flowers, crops, etc.

SECTION III. WELL CONSTRUCTION PERMIT AND APPLICATION

1. Any person or business wishing to construct a new well must apply for and receive a Well Construction Permit prior to beginning construction. Applications must include all required attachments and be submitted on the proper application form to:
 - Boston Public Health Commission
 - Environmental Health Office - ATTN: Well Permit Application
 - 1010 Massachusetts Avenue, 2nd Floor
 - Boston, MA 02118
2. A Well Construction Permit, when issued, is site-specific to a given installation and may not be transferred to another property or property owner. A complete application for a Well Construction Permit must include three identical packets each containing:
 - a. Completed application form
 - b. Certified plot plan showing the well location
 - c. Dig Safe certificate or other documentation that Dig Safe has reviewed the proposed well site for underground hazards
 - d. Complete well driller's project plan including:
 - i. Site plan showing the well location in relation to existing structures, water and sewer lines, and potential sources of contamination certified by a Professional Engineer or Professional Land Surveyor
 - ii. Description of drilling method(s), well construction materials (casing type and size, screen, pump, seal/grout material, etc.)
 - iii. List of equipment/systems to be connected to the well
 - e. If the well is intended to produce water for human consumption, a consultant report verifying well location meets current Massachusetts Department of Environmental Protection site selection criteria for a public water supply well pursuant to 310 CMR 22.21
 - f. Check or money order made payable to the Boston Public Health Commission for the appropriate application fee (\$100 for a geothermal well construction, \$500 for all other well types)
3. The application packet materials will be reviewed by both Boston Inspectional Services and Boston Water and Sewer Commission who may require revisions or additional conditions on the installation prior to BPHC granting a permit. Once both these agencies have approved the construction plan, the Commission will review the plan and, if it determines that construction will not result in harm to the public health or local environment, will issue the Well Construction Permit.

4. The applicant is responsible for securing all other necessary permits from local, state, and federal regulatory agencies as necessary for the project and for complying with all other applicable laws and regulations.
5. The Well Construction Permit must be maintained at the site of the construction and available for review by city inspectors at all times until the project is completed.
6. The Well Construction Permit will be valid for one year from the date of issuance unless revoked and may be extended for an additional six (6) months provided a written request for extension is received by the Commission at the address above at least three (3) months prior to the expiration date.

SECTION IV. ANNUAL WELL USE PERMIT AND WATER SUPPLY CERTIFICATE

1. Any person or business wishing to maintain and operate a well must apply for and receive an Annual Well Use Permit. Any well providing potable water for human consumption must also have an annual Water Supply Certificate which is applied for at the same time as the Well Use Permit. Applications must include all required attachments and be submitted on the proper application form to:
Boston Public Health Commission
Environmental Health Office - ATTN: Well Permit Application
1010 Massachusetts Avenue, 2nd Floor
Boston, MA 02118
2. A Well Use Permit, when issued, is site-specific to a given well. It may be transferred to the new owner with sale of the property but may not be applied to any other well.
3. A Water Supply Certificate, when issued, is site-specific to a given well and issued in conjunction with the Well Use Permit. It may be transferred to the new owner with sale of the property but may not be applied to any other well.
4. A first-time application for a Well Use Permit must contain:
 - a. Completed application form
 - b. A copy of the Boston Public Health Commission Well Construction Permit for the well
 - c. Copy of Massachusetts DEP Well Completion Report
 - d. Copy of ISD Building Permit under which the well was constructed
 - e. Check or money order (payable to Boston Public Health commission) for the applicable permit fee (\$600 for human consumption water wells, \$100 for all other well types)
 - f. Water testing results as appropriate to the well type (see section IV parts 6 and 7 below and section VI)
5. A renewal application for a Well Use Permit must contain:
 - a. Completed application form
 - b. Copy of the previous year's Boston Public Health Commission Well Use Permit or the permit number
 - c. Check or money order (payable to Boston Public Health commission) for the applicable permit fee (\$600 for human consumption water wells, \$100 for all other well types)
 - d. Water testing results as appropriate to the well type (see section IV parts 6 and 7 below and section VI)

6. If the applicant is requesting a Water Supply Certificate (required for all human consumption water wells), the Well Use Permit application must also include a copy of a water sampling and quality analysis report from an EPA or Massachusetts certified laboratory documenting that a water sample drawn from the well no more than two months prior to the application meets all Massachusetts state drinking water quality standards for a very small public water supply as specified in 310 CMR 22.
7. Applicants requesting a Well Use Permit for an irrigation or industrial well must include with their application a copy of a water sampling and quality analysis report from an EPA or Massachusetts certified laboratory documenting that a water sample drawn from the well no more than two months prior to the application meets the standards for bacterial contamination as specified in section VI(2) below.
8. No water quality testing is required of geothermal wells.
9. The application for a Well Use Permit must also include a signed statement by a licensed plumber certifying that the well:
 - a. Is in active use
 - b. Is in good repair and plumbed according to applicable code standards
 - c. Not interconnected to any Boston Water and Sewer Commission water supply lines
 - d. Does not discharge to the sanitary sewer or storm drain unless appropriately metered and permitted by Boston Water and Sewer Commission
 - e. If non-potable water (irrigation or industrial use) all fixtures/faucets are clearly marked “non-potable water, do not drink” and are bright orange in color
10. The Well Use Permit (and Water Supply Certificate if applicable) must be kept by the well owner on site and available for review by any city inspector.
11. The Well Use Permit and Water Supply Certificate are valid for a period of one year from the date of issuance unless cancelled or revoked early or specifically issued for a shorter time period for conditions specified on the permit.

SECTION V. WELL MAINTENANCE AND OPERATION REQUIREMENTS

1. No cross-connection – No well of any type may be plumbed such that is connected to the public water supply system in any way. This means that a well may not be plumbed so that it feeds into water supply line pipes that also connect to public water supply mains. This restriction extends to prohibiting the plumbing of a private well into any building supplied with water from a public water supply. This prohibition of well plumbing in a building containing plumbing connected to the public water supply does not apply to geothermal wells provided that they are not connected to the public water supply.
2. Discharge of waste water – a private well of any type may not discharge to the sanitary sewer system or storm drain unless it has been properly connected to a functioning Boston Water and Sewer Commission water meter.
3. Labeling of industrial and irrigation water systems – All industrial and irrigation water systems supplied by a private well must be properly marked and labeled from well to distribution point. Piping for such systems must be clearly labeled to distinguish them from pipes carrying potable water for human consumption and must be either in plain site or installed behind access panels that can be readily removed for inspection. Distribution points (taps, faucets, etc.) for industrial and irrigation well water must be clearly labeled

to warn the public that it is not for consumption. At a minimum, such labeling must include a tag permanently affixed to each distribution point reading “non-potable water, NOT for human consumption”. Labeling may also include painting pipes and distribution points a distinctive color, paint stencil warning markings, or signs affixed adjacent to distribution points.

SECTION VI. WATER QUALITY AND TESTING REQUIREMENTS

1. Water quality testing is required annually for all Human Consumption Water Wells as a condition of receiving an annual Use Permit and Water Supply Certificate. Water testing may be required at other times of the year as deemed necessary by the Commission to address concerns about a specific well or condition.
 - a. Water samples must be collected by an EPA or Massachusetts certified laboratory/environmental consultant following the sample and testing procedures described in 310 CMR 22.05(6) no more than 2 months prior to the renewal application for the annual Well Use Permit and Water Supply Certificate.
 - i. The sample must be collected from the well head or the nearest tap to the water source before any water treatment or heating devices.
 - ii. The sample collector should wash his/her hands and/or wear latex/nitrile gloves to prevent contamination of the sample.
 - iii. Sterilize the faucet/tap with an alcohol wipe or with dilute bleach and water.
 - iv. Allow the cold water only to run for 15 minutes to flush the system to get pure source water.
 - v. Being careful not to touch the inside of the container or the lid with your fingers, fill a sterile collection container (usually provided by the analytical lab) with 100ml or more of cold tap water.
 - vi. Close the container immediately after collection of the sample. Record the date, time, and location of the sample for future reference for the lab.
 - vii. Keep the sample refrigerated below 10°C (50°F) but do not freeze.
 - viii. The sample must be shipped to the lab quickly (best if it arrives at the lab within 6 hours) as it must be tested within 30 hours of collection to be valid. Check with your laboratory to verify testing schedules as some may not accept sample shipments on a Friday to avoid over-long testing delays.
 - b. Water samples must be submitted to an analytical laboratory certified by the US Environmental Protection Agency or the state of Massachusetts for testing of public drinking water quality.
 - c. Water quality analysis must include assessment of all biological and chemical contaminants specified in 310 CMR 22.00. Presentation of an analysis report for all contaminants showing measured levels below levels specified in 310 CMR 22.00 is a requirement for continued operation of a Human Consumption Water Well.
2. Water quality testing is required annually for all Irrigation and Industrial water wells as a condition of receiving an annual Use Permit. Water testing may be required at other

times of the year as deemed necessary by the Commission to address concerns about a specific well or condition.

- a. A water sample may be collected by the well owner or an EPA or Massachusetts certified laboratory/environmental consultant. The sample must be collected not more than 2 months prior to the renewal application for the annual Well Use Permit.
 - i. The sample must be collected from the well head or the nearest tap to the water source before any water treatment or heating devices.
 - ii. The sample collector should wash his/her hands and/or wear latex/nitrile gloves to prevent contamination of the sample.
 - iii. Sterilize the faucet/tap with an alcohol wipe or with dilute bleach and water.
 - iv. Allow the cold water only to run for 15 minutes to flush the system to get pure source water.
 - v. Being careful not to touch the inside of the container or the lid with your fingers, fill a sterile collection container (usually provided by the analytical lab) with 100ml or more of cold tap water.
 - vi. Close the container immediately after collection of the sample. Record the date, time, and location of the sample for future reference for the lab.
 - vii. Keep the sample refrigerated below 10°C (50°F) but do not freeze.
 - viii. The sample must be shipped to the lab quickly (best if it arrives at the lab within 6 hours) as it must be tested within 30 hours of collection to be valid. Check with your laboratory to verify testing schedules as some may not accept sample shipments on a Friday to avoid over-long testing delays.
 - b. Water samples must be submitted to an analytical laboratory certified by the US Environmental Protection Agency or the state of Massachusetts for testing in accordance with the most recent edition of the Standard Methods for the Examination of Water and Waste Water of the American Public Health Association or as approved by the United States Environmental Protection Agency.
 - c. The sample must be tested for the presence of *E. Coli* and the sample may not exceed 235 colonies per 100ml for the well to be permitted and remain in continued operation as an Irrigation or Industrial Water Well.
 - d. Irrigation and Industrial water wells may not be used for water for human consumption.
3. No water quality testing is required for Geothermal wells.

SECTION VII. DECOMMISSIONING A WELL

1. 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 a private well shall decommission the well if any of the following criteria are met:
 - a. Construction of the well is terminated prior to completion of the well.
 - b. The well owner notifies the Board that the use of the well is to be permanently discontinued.

- c. The well has been out of service for at least three (3) years.
 - d. The well is a potential hazard to public health or safety and the situation cannot be corrected.
 - e. The well is in such a state of disrepair that its continued use is impractical or unsafe.
 - f. 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
2. The property owner shall ensure that that all abandoned wells and test holes or borings associated with the well installation are properly plugged before work at the site is completed.
3. Only certified well drillers may plug abandoned wells, test holes, and borings.
4. Abandoned overburden wells or borings shall be completely filled with a low permeability grout, which cures with a final permeability of less than 1×10^{-7} cm/sec. Wells shall be plugged with neat cement grout, sand cement grout, concrete, or bentonite grout. Regardless of the type used, the grout used for plugging shall:
 - a. Be sufficiently fluid so that it can be applied through a tremie pipe from the bottom of the well upward;
 - b. Remain as a homogeneous fluid when applied to the subsurface rather than; disaggregating by gravity into a two phase substance;
 - c. Be resistant to chemical or physical deterioration; and
 - d. Not leach chemicals, either organic or inorganic, that will affect the quality of the groundwater where it is applied
5. The plugging materials shall be introduced at the bottom of the well or boring and placed progressively upward to a level approximately four (4) feet below the ground surface. Sealing materials shall not be poured from the land surface into the well, borehole, or annular space being sealed.
6. The well driller shall install a surface seal after the well or boring has been plugged. Before the surface seal is placed, casing remaining in the hole shall be cut off. The remaining four (4) feet at the top of the well or boring shall then be filled with concrete. The top of the seal shall comprise a concrete slab above the top of the plugged well or boring. This concrete slab shall be at least six (6) inches thick and shall be at least two (2) feet greater in diameter than the well casing or borehole wall.