

CHAPTER 10

DRINKING WATER

BOARD OF HEALTH ROLE AT A GLANCE

- Oversee the proper siting, operation, maintenance and monitoring of private wells. (If local regulations or bylaws are adopted granting the BOH this authority)
- Administer Title 5 of the State Environmental Code to prevent contamination of drinking water supplies from septic systems and cesspools. (See Chapter 7)
- Ensure that safe and adequate water supplies are available in all residences and where food or beverages are served to the public.
- Address potential water supply contamination threats including industrial floor drains, solid waste facilities, pesticide use and illegal dumping.
- Notify DEP whenever potential violations of state drinking water requirements are found during inspections of facilities that provide water to the public.

OVERVIEW

Massachusetts is a densely populated and heavily industrialized state that draws a significant portion of its water supplies from vulnerable aquifers. Because safe and abundant drinking water is essential for good health _ and a cornerstone of our state's continued quality of life and economic competitiveness _ ensuring the purity of our water supplies is of paramount importance. And doing so has been the ultimate goal of much of the environmental legislation enacted in this country over the last quarter-century.

The federal Safe Drinking Water Act (SDWA), passed by Congress in 1974 and amended in 1986 and 1996, sets water quality standards for public water supplies and specifies treatment requirements for different types of source water. It also includes rigorous requirements for sampling, reporting, record keeping and public notification.

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the provisions of the SDWA. Contaminants regulated by EPA include microorganisms (bacteria, viruses and protozoa), inorganic chemicals, turbidity, synthetic organic chemicals (SOCs), volatile organic compounds (VOCs), radionuclides and disinfection byproducts.

Protecting Water Supplies in Massachusetts

The Commonwealth's public drinking water program began in the late 19th century when minimum requirements for public drinking water were included in the State Sanitary Code and administered by engineers at the State Board of Health. That agency's primary responsibilities included examining wells and conducting limited tests for inorganic contaminants and bacteria.

Today, the Department of Environmental Protection (DEP) and local boards of health share the important task of ensuring the safety of all drinking water supplies. DEP's Drinking Water Program monitors all public water supplies for compliance with SDWA requirements. Community water suppliers must now sample for and report on more than 100 potential contaminants. Municipal health boards regulate private wells.

Approximately 93 percent of Massachusetts residents rely on public water supplies for their drinking water. The rest obtain their water from private wells. Although the proportion of people served by private wells is comparatively small, the number of private wells across the state is growing. Some 7,000 new private wells are drilled every year. In contrast, fewer than 1,600 public water suppliers exist across the state.

Municipal boards of health oversee all private water supplies in accordance with local regulations. Private water supplies include residential wells and water supplies that have fewer than 15 service connections and serve either fewer than 25 people year-round or an average of at least 25 people for less than 60 days a year. Because private supplies far outnumber public systems and rarely have professional operators, health boards play a tremendously important role in overseeing the quality of this water.

In Massachusetts, only those who meet minimum qualifications and are registered as well drillers with the state Department of Environmental Management (DEM) may legally dig or drill new wells. Specifics can be found in M.G.L. c. 21, s. 16. Registered well drillers are required by this law to submit reports both to DEM and to local health boards whenever new wells are established. Those failing to comply face the loss of their DEM registrations.

Under the 1986 SDWA amendments, the testing requirements for public water systems were increased. Not always understanding the implications of this change, many small systems - including restaurants, schools, businesses, and workplaces that provide drinking water to staff and visitors - still do not monitor sufficiently for bacteria and other contaminants. Local health boards and their agents are on the front lines of checking for compliance with the State Sanitary Code. They can assist DEP at the same time by being aware of the following:

- **System Classification and Registration.** If a system serves more than 25 people for more than 60 days per year, it is considered a public water supply and is subject to DEP regulation. Included in this category are water vendors and many small businesses. If the facility cannot produce its water supply registration number, contact DEP's regional office for your community. For a list of registered public water

systems in your town or city, call DEP's Drinking Water Program at (617) 292-5770.

- **Certified Operators.** All public water supplies, including small systems, are required by 310 CMR 22.11B to employ certified operators.
- **Inspection of Non-community Systems.** Motels, campgrounds, restaurants, schools, local businesses and town offices served by wells should be inspected for sanitary conditions. When public health nuisances are found and remain uncorrected, the board of health may recommend that the issuing authority, generally another municipal board, not renew a facility's local license to operate. Non--community systems are also regulated by DEP. When DEP identifies a non-community system that is not meeting the DEP standards, the DEP may request that the board of health not renew or revoke the facility's local license to operate, if the facility's license is within the board's jurisdiction.
- **Declassification of a Public Water System.** When a public water supply falls below state regulatory thresholds, it is declassified by DEP and placed within board of health jurisdiction as a private water supply. Whenever a system is declassified, DEP sends a copy of the transaction to the board of health.
- **Consolidation of Water Supplies.** New wells or other sources of supply can be very costly to establish and maintain in compliance. Therefore, when reviewing plans for new buildings, the board of health should actively encourage developers to seek connections with existing public water lines if at all possible.

Contamination Threats

Given how thickly settled and industrialized our state has become, its water supplies _ most of them drawn from shallow sand and gravel aquifers _ are highly vulnerable. A wide range of manufactured and naturally-occurring contaminants can find their way into our water supplies in a variety of ways. In general, however, they fall into four major categories:

- Point-source pollution that can be traced to specific sources, such as industrial discharge pipes, failing septic systems or leaking underground storage tanks;
- Diffused (or nonpoint-source) pollution, including runoff from farms, roads, lawns and parking lots, and the settling of airborne contaminants;
- Microorganisms such as bacteria, parasites and viruses; and
- Naturally-occurring phenomena including radiation and metals that may be present in the soil or underlying geologic features.

Over the years, more than 70 Massachusetts communities have lost at least one drinking water source to contamination. Major culprits have included accidental spills, chemical manufacturing wastes, clandestine dumping, failing septic systems, landfill leachate, leaking

underground storage tanks and wintertime salting of roads.

Safeguarding Water Supplies

While water testing is the best way to verify drinking water quality in any specific location, source water protection, distribution system maintenance, and cross connection control are the best ways to ensure that citizens receive high-quality water in their homes. DEP recommends that each town and city adopt protective land use controls for all wellhead and surface water supply protection areas in the community. As a rule, preventing a water supply from becoming polluted is far easier and cheaper than cleaning up a contaminated supply after the fact.

A general or zoning bylaw or ordinance might be appropriate to regulate the siting of new facilities that generate hazardous waste, while a health regulation could be useful for restricting storage of hazardous materials. Regardless of the approach ultimately chosen, the board of health can and should lend its voice to the debate over where and how measures are implemented locally.

Board of Health Responsibilities

Authority under M.G.L. c. 111, §. 31 and 122.

The board of health is responsible for:

- **Ordering owners or occupants of buildings to clean up any water quality-related nuisances or causes of sickness** (see M.G.L. c. 111, s. 122) and to use best management practices for preventing future problems.
- **Requiring proof that a water supply source is available before the local building official issues a permit for new construction** (M.G.L. c. 40, s. 54). A potable drinking water supply can be obtained for a new building by: (1) making supply line connection arrangements with a municipality, water district or other public water system, or (2) establishing an on-site water supply, generally by having a new well drilled. Wells that have more than 15 service connections or serve a population in excess of 25 for more than 60 days per year, are considered public supplies and are subject to DEP approval and regulation.
- **Regulating private water supplies.** To protect all private wells within its jurisdiction, the board of health should:
 - Maintain an inventory of all existing well locations;
 - Adopt minimum standards for installing new private wells after consulting DEP's *Private Well Guidelines* and *Model Board of Health Regulation for Private Wells*;
 - Ensure that private wells are not located within 100 feet of septic tanks or

leaching fields, in accordance with Title 5 (see Chapter 7);

- Educate the public about private well maintenance and advise well owners to test their water for certain contaminants on a regular basis as well as prior to any property transfer;
- Require the treatment or closure of any well found to be exceeding state primary maximum contaminant levels (MCLs) for any water quality standards to provide treatment or to shut down;
- Assist DEP by identifying and reporting any unregistered private well that may in fact be a public water supply and subject to state regulation.

Adopting local water supply protection regulations under M.G.L. c. 111, s. 31, when appropriate. Board of health regulations can apply to existing and future land uses. Although they require public participation at hearings, board of health regulations may not always enjoy broad citizen support because their issuance is not subject to town meeting or municipal council approval.

Board of Health Recommended Activities

The board of health should:

- Become acquainted with all public water supply protection area boundaries and private well locations within the community. Post current maps as a reference for board members and the public. Sources of maps include local water suppliers, DEP and the state Department of Food and Agriculture (DFA).
- Take advantage of opportunities to review plans for new development in water supply protection areas to ensure adequate environmental and public health safeguards.
- Coordinate efforts with other town boards, public water suppliers and neighboring communities. Consider establishing a local Water Supply Protection Advisory Committee.
- Identify and address contamination threats. Among other things, help local businesses understand and comply with hazardous waste management and industrial floor drain regulations; respond immediately to any reports of illegal dumping near water supplies; report inappropriate uses of herbicides and pesticides to DFA and road salt to DEP; and encourage larger users of fertilizers to adopt good management practices.

Public Water Supplier Responsibilities

For purposes of comparison, public water suppliers regulated by DEP are required to:

- Apply for and receive written DEP approval prior to constructing or operating a new public water system or modifying an existing DEP approved public water system, as specified in 310 CMR 22.04 (1).
- **Perform routine water quality monitoring** of source water for both regulated and unregulated chemicals, as specified in 310 CMR 22.05-22.09. The frequency of testing is based on the type and size of the system, the source of the water supply and whether there has been a history of contamination. A DEP fact sheet, *Summary of Massachusetts Drinking Water Quality Program*, lists the primary and secondary contaminants, the allowable maximum contaminant levels (MCLs) and the required time frames for testing and reporting these chemicals to DEP. This fact sheet is updated twice a year.
- **Report to DEP the use of chemicals added to the water supply**, as required by 310 CMR 22.15(4).
- **Immediately notify both the public and DEP** whenever a regulatory threshold has been exceeded for any regulated chemical's maximum contaminant level (MCL), as required by 310 CMR 22.16. The public notice must use language specified in the regulation. If DEP takes any enforcement action as a result of the contamination problem, the agency will inform the board of health.
- **Employ a certified operator**, as required by 310 CMR 22.11B. The primary operator of a public water supply must have a certification grade that corresponds with the classification of the system. The system's classification is determined by DEP based on both its complexity and the number of people served.
- **Undergo a routine sanitary survey of the public water system**, as required by 310 CMR 22.04(10) to determine if the daily system operation and maintenance are sufficient to protect public health.
- **Routinely survey each source water's wellhead and/or watershed recharge area** to control and/or limit potential sources of pathogen or chemical contamination. These inspections are specified in 310 CMR 22.20(9) and 310 CMR 22.21(4).
- **Minimize or eliminate all cross connections** in the water system. Public water suppliers have authority to terminate the water service connection to any facility where cross connections are maintained without approved backflow prevention devices, as required by 310 CMR 22.22.
- **Submit an annual statistical report** to DEP each January, as required by 310 CMR 22.15(5).

For additional information:

- **Massachusetts Department of Environmental Protection, Drinking Water Program.** The Boston office provides statewide information about drinking water protection and management. For answers to community-specific questions, please contact the DEP regional office that serves your city or town.

Boston	(617) 292-5770
Lakeville	(508) 946-2700
Springfield	(413) 784-1100 x284
Woburn	(978) 661-7600
Worcester	(508) 792-7650

DEP also offers a number of publications specifically prepared for local boards of health:

- *Model Board of Health Regulation for Groundwater Protection*
- *Model Board of Health Regulation for Floor Drains*
- *Model Board of Health Regulation for Private Wells*
- *Wellhead Protection Model Bylaw/ Ordinance*
- *Private Well Guidelines, with addendum of recommended sampling schedule for water quality testing*
- *Safe Drinking Water And Your Campground. A resource for Massachusetts campgrounds*

For information on any of these publications, please call (617) 292-5770. You also may access them electronically in the following two ways:

- DEP's Computer Bulletin Board System: (617) 292-5546 [Modem speed: up to 9600 baud; modem settings: 8 data, 1 stop, no parity; terminal emulation: either VT100, VT102, or VT104].
- The DEP Drinking Water Program's Home Page on the World Wide Web: <http://www.state.ma.us/brp/dws/>. Publications currently available on the Web include a number of brochures, all of the models bylaws and health regulations listed above, the *2001 Guidelines and Policies for Public Water Systems* (Volumes 1 and 2), and the Massachusetts Drinking Water Regulations, 310 CMR 22.00._

- **Massachusetts Department of Environmental Protection, William X. Wall Experiment Station.** (508) 682-2737. This facility certifies analytical laboratories to test Massachusetts drinking water for primary and secondary contaminants. The most current list of certified laboratories is available on request.
- **Massachusetts Department of Public Health.**

Waterborne Diseases	(617) 983-6800
Bottled Water	(617) 983-6766
Fluoride	(617) 624-5941

- **Massachusetts Department of Environmental Management, Office of Water Resources, Well Driller Registration Program.**
(617) 727-3267, extension 511. The following publication is available on request: *Summary of Boards of Health Requirements for Well Drilling/ Construction in Massachusetts* (November 1995).
- **University of Massachusetts Extension (formerly the Cooperative Extension).**
(413) 545-2188. Provides technical assistance on private well protection, septic systems, nonpoint source pollution and water quality testing.
- **Safe Drinking Water Hotline.** (800) 426-4791. Operated from 8:30 a.m. to 5:30 p.m. on weekdays by the U.S. Environmental Protection Agency (EPA) and staffed by technical information specialists who can answer questions on water quality, drinking water regulations and EPA policies, guidelines, and publications.