



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

# Department of Environmental Protection

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## MODEL

### GROUNDWATER PROTECTION BOARD OF HEALTH REGULATION

(updated 2011)

- This model was initially developed in 1996 to provide communities with an example of a Board of Health Regulation that complies with MassDEP's Wellhead Protection Regulations (WHP), 310 CMR 22.21(2).
- Sections of this model are stricter than the WHP Regulations. Adoption of this model is not required for compliance with 310 CMR 22.21(2). Compliance may be achieved by adopting this model OR by adopting any combination of zoning bylaws, general bylaws and health regulations that sufficiently prohibit the land uses and activities cited in 310 CMR 22.21(2).
- This model includes the floor drain prohibition, 310 CMR 22.21(2)(a)(8). For communities who would like to develop a more comprehensive floor drain regulation, a Model Board of Health Floor Drain Regulation is available from MassDEP.
- For communities seeking to protect their public drinking water supplies through zoning controls, a Model Groundwater Protection District Bylaw /Ordinance is also available.
- For more information visit <http://www.mass.gov/dep/water/drinking/sourcewa.htm>.

#### How to Use this Model

1. Fill in the underlined blanks with the appropriate information for your community;
2. Remove [*brackets and italicized words*] and replace with the correct information;
3. Remove all footnotes and endnotes; and
4. Modify model language as appropriate for your community. Refer to the attached WHP Regulations.<sup>1</sup>

Groundwater Protection Regulation <sup>2</sup>  
[Name of Town/City] Board of Health

MGL c. 111 s. 31 and s. 122

[date of adoption]

**Section I. SCOPE OF AUTHORITY**

The [Town/City] of \_\_\_\_\_ Board of Health adopts the following Groundwater Protection Regulation pursuant to authorization granted by MGL. c 111 s. 31 and 122. This regulation shall apply, as specified in Section III, to all applicable facilities within the [Town/City] of \_\_\_\_\_ .

**Section II. PURPOSE OF REGULATION <sup>3</sup>**

Whereas:

- siting of certain uses and activities have the potential to release hazardous waste, petroleum products and other pollutants into drinking water supply areas; and
- discharges of leachate, pathogens, and other pollutants have repeatedly threatened surface and ground water quality throughout Massachusetts; and
- surface and ground water resources contribute to the [Town's/City's] public drinking water supplies;

The [Town/City] of \_\_\_\_\_ adopts the following regulation, under its authority as specified in Section I, as a preventative measure for the purpose of preserving and protecting public drinking water quality and to minimize the risk to public health and the environment.

**Section III. APPLICABILITY**

The regulation shall apply to all applicable facilities within the Zone II [and Interim Wellhead Protection Areas] <sup>4</sup> located within the [Town/City] of \_\_\_\_\_. These drinking water supply areas are delineated on a map entitled \_\_\_\_\_ and dated \_\_\_\_\_.<sup>5</sup>

**Section IV. DEFINITIONS**

Automobile Graveyard: An establishment that is maintained, used, or operated for storing, keeping, buying, or selling wrecked, scrapped, ruined, or motor vehicle parts, as defined in MGL c.140B, s.1

Aquifer: A geologic formation composed of rock, sand or gravel that contains significant amounts of potentially recoverable water.

CMR: Code of Massachusetts Regulations.

Commercial/Industrial Facility: A public or private establishment where the principal use is the supply, sale, and/or manufacture of services, products, or information, including but not limited to:

manufacturing, processing, or other industrial operations; service or retail establishments; printing or publishing establishments; research and development facilities; small or large quantity generators of hazardous waste; laboratories; hospitals.

Commercial Fertilizer: Any substance containing one or more recognized plant nutrients which is used for its plant nutrient content and which is designed for use, or claimed to have value in promoting plant growth, except un-manipulated animal and vegetable manures, marl, lime, limestone, wood ashes, and gypsum, and other products exempted by state regulation.

Discharge: The accidental or intentional disposal, deposit, injection, dumping, spilling, leaking, pouring, or placing of toxic or hazardous material or hazardous waste upon or into any land or water such that it may enter the surface or ground waters.

Dry Well: A subsurface pit with open-jointed lining or holes through which storm-water drainage from roofs, basement floors, foundations or other areas seep into the surrounding soil.

Groundwater Protection Area: The drinking water supply area protected by this regulation.

Hazardous Material: Any substance in any form which because of its quantity, concentration, or its chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with one or more substances, constitutes a present or potential threat to human health, safety, welfare, or to the environment, when improperly stored, treated, transported, disposed of, used, or otherwise managed. Hazardous materials include, without limitation, synthetic organic chemicals, petroleum products, heavy metals, radioactive or infectious materials, and all substances defined as toxic or hazardous under MGL c. 21E.<sup>6,7</sup> This term shall not include hazardous waste or oil.

Hazardous Waste: A substance or combination of substances, which because of quantity, concentration, or physical, chemical or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness or pose a substantial present or potential hazard to human health, safety, or welfare or to the environment when improperly treated, stored, transported, used or disposed of, or otherwise managed. This term shall include all substances identified as hazardous pursuant to the Hazardous Waste Regulations, 310 CMR 30.000.

Historical High Groundwater Table: A groundwater elevation determined from monitoring wells and historical water table fluctuation data compiled by the United States Geological Survey.

Impervious Surface: Material or structure on, above, or below the ground that does not allow precipitation or surface water runoff to penetrate into the soil.

*[Interim Wellhead Protection Area (IWPA): The Mass DEP designated protection radius around a public water well that lacks a Zone II.]*

Junkyard: An establishment that is maintained, operated, or used for storing, keeping, buying, or selling junk, or for the maintenance or operation of an automobile graveyard, as defined in MGL c.140B, s.1.

Landfill: A facility established in accordance with a valid site assignment for the purposes of disposing solid waste into or on the land, pursuant to the Solid Waste Regulations, 310 CMR 19.006.

MassDEP: Massachusetts Department of Environmental Protection.

MGL: Massachusetts General Law.

Non-Sanitary Wastewater: Discharges from industrial and commercial facilities containing wastes from any activity other than collection of sanitary sewage.

Petroleum Product: Includes, but is not limited to: fuel oil; gasoline; diesel; kerosene; aviation jet fuel; aviation gasoline; lubricating oils; oily sludge; oil refuse; oil mixed with other wastes; crude oils; or other liquid hydrocarbons regardless of specific gravity. Petroleum product shall not include liquefied petroleum gas including, but not limited to, liquefied natural gas, propane or butane.

Open Dump: A facility operated or maintained in violation of the Resource Conservation and Recovery Act 42 USC 4004(a)(b), or state regulations and criteria for solid waste disposal.

Recharge Areas: Land areas, such as a Zone II and Interim Wellhead Protection Areas, where precipitation and surface water infiltrates into the ground to replenish groundwater and aquifers used for public drinking water supplies.

Septage: The liquid, solid, and semi-solid contents of privies, chemical toilets, cesspools, holding tanks, or other sewage waste receptacles. This term shall not include any material that is a hazardous waste, as defined by the Hazardous Waste Regulations 310 CMR 30.000.

Sludge: The solid, semi-solid, and liquid residue that results from a process of wastewater treatment or drinking water treatment including wastewater residuals. This term shall not include grit, screening, or grease and oil which are removed at the head-works of a facility.

Treatment Works: Any and all devices, processes and properties, real or personal, used in the collection, pumping, transmission, storage, treatment, disposal, recycling, reclamation, or reuse of waterborne pollutants, but not including any works receiving a hazardous waste from off the site of the works for the purpose of treatment, storage, or disposal.

Utility Works: Regulated activities providing for public services, including roads, water, sewer, electricity, gas, telephone, transportation and their associated maintenance activities. This term shall include the installation of detention and retention basins for the purpose of controlling storm water.

Very Small Quantity Generator (VSQG): Any public or private entity, other than residential, which produces less than 27 gallons (100 kilograms) a month of hazardous waste or waste oil, but not including any acutely hazardous waste as defined in 310 CMR 30.136.

Waste Oil Retention Facility: A waste oil collection facility for automobile service stations, retail outlets, and marinas which is sheltered and has adequate protection to contain a spill, seepage, or discharge of petroleum waste products in accordance with MGL c.21, s.52A.<sup>8</sup>

Zone II: The delineated recharge area to a public drinking water well as approved by MassDEP and defined under the MA Drinking Water Regulations 310 CMR 22.00.<sup>9</sup>

## **Section V. PROHIBITIONS**

A. The following land uses and activities are prohibited in the Groundwater Protection Area:<sup>10</sup>

1. Landfills and open dumps;
2. Landfills (monofills) receiving only wastewater residuals and/or septage, including those approved by MassDEP pursuant to MGL c. 21 s.26 through s.53, MGL c.111 s.17, and MGL c.83 s.6 and s.7;<sup>11</sup>
3. Automobile graveyards and junkyards;
4. Disposal or stockpiling of chemically treated snow and ice that have been removed from highways and roadways from outside the Groundwater Protection Area;
5. Petroleum, fuel oil, and heating oil bulk stations and terminals including, but not limited to, those listed under North American Industry Classification System (NAICS) Codes 424710 and 454311, except for liquefied petroleum gas;<sup>12</sup>
6. Treatment or disposal works, subject to 314 CMR 5.00, for non-sanitary wastewater, including those activities listed under 310 CMR 15.004(6), except for:<sup>13, 14</sup>
  - a. replacement or repair of an existing treatment works that will not result in a design capacity greater than the design capacity of the existing treatment works;
  - b. treatment works approved by MassDEP designed for the treatment of contaminated ground or surface water and operating in compliance with 314 CMR 5.05(3) or 5.05(13); and
  - c. publicly owned treatment works.
7. Facilities that generate, treat, store, or dispose of hazardous waste subject to MGL. c. 21C and 310 CMR 30.000, except for:
  - a. very small quantity generators (VSQGs);
  - b. household hazardous waste collection centers or collection events;
  - c. waste oil retention facilities; and
  - d. treatment works for the restoration of contaminated ground or surface waters in compliance with MGL. c.21E and 310 CMR 40.000.<sup>15</sup>
8. Existing floor drain systems located in a hazardous material or hazardous waste process area or storage area within a commercial or industrial facility and which discharges to the ground without a MassDEP permit or authorization. Any existing facility with such a drainage system shall be required to either seal the floor drain in accordance with the state plumbing code, 248 CMR 10.00, connect the drain to a municipal sewer system (with all appropriate permits and pre-treatment), or connect the drain to a holding tank meeting the requirements of all appropriate MassDEP regulations and policies.<sup>16</sup>

B. The following land uses and activities are prohibited unless designed in accordance with the specified performance standards:

1. Storage of liquid hazardous materials and/or liquid petroleum products, unless such materials are stored above ground and on an impervious surface, and in containers (or above ground

- tanks) within a building, or outdoors in covered containers (or above ground tanks) designed and operated to hold either 10% of the total possible storage capacity of all containers, or 110% of the largest container's storage capacity, whichever is greater. However these storage requirements shall not apply to the replacement of existing tanks or systems for the keeping, dispensing or storing of gasoline provided the replacement is performed in a manner consistent with state and local requirements;
2. Rendering impervious any lot or parcel more than 15% or 2,500 square feet, whichever is greater, unless artificial recharge, that will not degrade water quality, is provided using methods demonstrated to be capable of removing contaminants from storm water and which are consistent with methods and best management practices described in MassDEP's 'Storm Water Handbook', Volumes I,II,III, as amended;<sup>17</sup>
  3. Removal of soil, loam, sand, gravel or any other mineral substances within four feet of the historical high groundwater table, unless the substances removed are re-deposited within 45 days of removal on site to achieve a final grading greater than four feet above the historical high water mark, and except for excavations for the construction of building foundations, the installation of utility works , or wetland restoration work conducted in accordance with a valid Order of Condition issued pursuant to MGL. c. 131, s.40;<sup>18</sup>
  4. Storage of sludge and septage, unless such storage is in compliance with 310 CMR 32.30 and 310 CMR 32.31;<sup>19</sup>
  5. Storage of de-icing chemicals including sodium chloride and chemically treated abrasives, unless such storage is within a structure designed to prevent the generation and release of contaminated leachate and runoff;
  6. Storage of animal manure, unless such storage is within a structure designed to prevent the generation and release of contaminated leachate and runoff; and
  7. Storage of commercial fertilizers, unless such storage is within a structure designed to prevent the generation and release of contaminated leachate and runoff.

## **Section VI. EFFECTIVE DATES FOR ALL FACILITIES**

- A. The effective date of this regulation is the date posted on the front page of the regulation, which shall be identical to the date of adoption of the regulation.
- B. Certification of conformance with the provisions of this regulation by the Board of Health shall be required prior to issuance of construction and occupancy permits.
- C. As of the effective date all new construction and/or applicable change of use within the [Town/ City] of \_\_\_\_\_ shall comply with the provisions of this regulation.

## **Section VII. PENALTIES**

Any person who violates any provision of this regulation, or who fails to comply with any Order by the Board of Health, for which a penalty is not otherwise provided in any of the general laws shall be subject to a fine of not less than \$200.00 but no more than \$1000.00. Each day's failure to comply with an Order may constitute a separate violation.

### **Section VIII. SEVERABILITY**

If any provision of this regulation is declared invalid by a court of competent jurisdiction, such invalidity shall not affect any remaining provisions of this regulation. 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.

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- (2). landfills receiving only wastewater residuals and/or septage;
  - (3). automobile graveyards and junkyards, as defined in MGL. c. 140B, s.1;
  - (4). stockpiling and disposal of snow or ice removed from highways and streets located outside of Zone II that contains sodium chloride, chemically treated abrasives or other chemicals used for snow and ice removal;
  - (5). petroleum, fuel oil and heating oil bulk stations and terminals, including, but not limited to, those listed under Standard Industrial Classification Codes 5171 and 5983, not including liquefied petroleum gas;
  - (6). treatment or disposal works subject to 314 CMR 5.00, for wastewater other than sanitary sewage. This prohibition includes, but is not limited to, treatment or disposal works related to activities under the Standard Industrial Classification (SIC) Codes set forth in 310 CMR 15.004(6) (Title 5), except for the replacement or repair of an existing system(s) that will not result in a design capacity greater than the design capacity of the existing system(s); and treatment works approved by the Department designed for the treatment of contaminated ground or surface waters and operated in compliance with 314 CMR 5.05(3) or 5.05(13); and publicly owned treatment works;
  - (7). facilities that generate, treat, store or dispose of hazardous waste that are subject to MGL. c. 21C and 310 CMR 30.000, except for very small quantity generators, as defined by 310 CMR 30.000; and household hazardous waste collection centers or events operated pursuant to 310 CMR 30.390; and waste oil retention facilities required by MGL. c. 21, s. 52A; and treatment works approved by MassDEP and designed in accordance with 314 CMR 5.00 for the treatment of contaminated ground or surface waters;
  - (8). floor drainage systems in existing industrial or commercial hazardous material facilities and/or hazardous waste process areas or storage areas, which discharge to the ground without a MassDEP permit or authorization. Any existing facility with such a drainage system shall be required to either seal the floor drain (in accordance with the state plumbing code, 248 CMR 10.001), connect the drain to a municipal sewer system or holding tank meeting all DEP regulations and requirements.

**(b)** Wellhead protection zoning and non-zoning controls submitted to the Department in accordance with 310 CMR 22.21(1), shall collectively prohibit the siting of the following land uses within the Zone II of the proposed well or wellfield unless designed in accordance with the specified performance standards:

- (1). storage of sludge and septage, unless such storage is in compliance with 310 CMR 32.30 and 310 CMR 32.31;
- (2). storage of sodium chloride, chemically treated abrasives or other chemicals used for the removal of ice and snow on roads, unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate;
- (3). storage of commercial fertilizers; unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate;
- (4). storage of animal manures, unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate.
- (5). storage of liquid hazardous materials, as defined in MGL. c. 21E, and/or liquid petroleum products unless such storage is above ground level AND on an impervious surface in container(s) AND either in above ground tank(s) within a building on an impervious surface OR outdoors in covered container(s) or above ground tank(s) in an area that has a containment system designed and operated to hold either 10% of the total possible storage capacity of all containers, or 110% of the largest container's storage capacity, whichever is greater;
- (6). removal of soil, loam, sand, gravel or any other mineral substances within four feet of the historical high groundwater table elevation (as determined from monitoring wells and historical water table fluctuation data compiled by the United States Geological Survey), unless the substances removed are re-deposited within 45 days of removal on site to achieve a final grading greater than four feet above the historical high water mark, and except for excavations for the construction of building foundations, the installation of utility works, or wetland restoration work conducted in accordance with a valid order of condition issued pursuant to MGL. c. 131, s. 40
- (7). land uses that result in the rendering impervious any lot or parcel more than 15% or 2500 square feet, whichever is greater, unless a system for artificial recharge of precipitation is provided that will not result in the degradation of groundwater quality.

<sup>2</sup> Other common names include Aquifer Protection Regulation, Water Supply Protection Regulation or Wellhead Protection Regulation. Be sure the name is consistent throughout the regulation. Most Boards of Health adopt the MassDEP approved Zone II map(s) as the designated protection area.

<sup>3</sup> When defining a 'Purpose' for the regulation, consider the unique land use issues and problems that are of concern to the community. Revise as needed to be in accordance with the specific needs of the community.



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<sup>4</sup> IWPAAs are not required to be protected. Many communities choose to protect such wells because they often serve sensitive populations, such as schools, nursing homes and hospitals. If you do not have any IWPAAs, or this regulation will not include IWPAAs, then delete this term here (Section III) and from the Definition section.

<sup>5</sup> Reference either the approved Zone II map (available from the public water supplier or MassDEP); or any community map in which the designated protection area covers the Zone II (and/or IWPAAs).

<sup>6</sup> Please note that *only* liquid hazardous materials are prohibited in the Zone II and *only* when not stored according to 310 CMR 22.21(2)(b)(5). The use/storage of dry hazardous materials is not prohibited under 310 CMR 22.21(2). If choosing to prohibit all hazardous materials, then provide an exception for activities related to the maintenance and operation of public water supply wells.

<sup>7</sup> MGL c. 21E MA Oil and Hazardous Material Release Prevention and Response Act

<sup>8</sup> MGL.c. 21 s. 52A requires all auto service stations, marinas, and retail outlets that sell auto lubricating oil to accept waste oil and to install retention facilities properly sheltered and protected to prevent discharge of waste oil into storm or sanitary sewers or into the waters of the commonwealth and to properly dispose of accumulated waste oil.

<sup>9</sup> Compliance with the Wellhead Protection Regulations means that municipal controls [bylaws/ordinances and/or BOH regs] prohibit within the Zone II, all of the land uses and activities cited in 310 CMR 22.21(2).

<sup>10</sup> Name of map, identified in Section III.

<sup>11</sup> MGL c. 21 s.26 - s.53 Massachusetts Clean Waters Act, MGL.c. 111 s.17 Public Health Title XVI, and MGL. c.83, s.6, s.7 Public Ways and Works Title XIV

<sup>12</sup> In 1997 the North American Industry Classification System (NAICS) replaced the Standard Industrial Classification (SIC) system. Municipalities may reference either classification system

<sup>13</sup> 314 CMR 5.00 regulates groundwater discharges.

<sup>14</sup> 314 CMR 15.04(6) (Title 5 Septic Systems) No person shall discharge or allow the discharge of wastes from the industry categories listed in 310 CMR 15.004(5) to any system regulated under 310 CMR 15.000. No system shall receive oil, hazardous materials or waste, medical wastes or radioactive wastes.

<sup>15</sup> Massachusetts Contingency Plan (the MCP) , 310 CMR 40.000

<sup>16</sup> If adopting a separate floor drain control, delete this prohibition

<sup>17</sup> MassDEP's Stormwater Handbook is available on MassDEP's website.

<sup>18</sup> MGL c.131 s.40 regulates the removal, filling, dredging or altering of land bordering waters.

<sup>19</sup> Sludge and Septage Regulations 310 CMR 32.30, prohibit storage within a 2,500' radius of a public water supply well, *unless* storage is a watertight container, or if it is determined that such storage will not result in contamination.