COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DRINKING WATER PROGRAM

Hazardous Materials Management:

A Community's Guide to Developing and Implementing A Local Regulation to Protect Drinking Water Resources

Updated March 1999

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MUNICIPAL WATER SUPPLY PUMP HOUSE

Introduction

Community A has just found out that its largest well is contaminated with solvents from a dry cleaning business. They will have to buy water from another town until the current supply can be treated at a cost to the town of over $700,000, and the dry cleaner's owner will have to spend $300,000 for the clean-up.

Community B is planning for future water needs and realizes that it will need to develop at least one new large water supply well by 2005. The most productive aquifer's recharge area is industrially zoned and has many high risk land uses within its borders.

While more and more communities throughout Massachusetts are confronting scenarios similar to these, locating and developing new public water supplies has become much more costly and complex. Many towns and businesses in the Commonwealth have discovered the hard way that protecting existing supplies is far more cost effective than developing new water supplies.

As a result, many communities in Massachusetts are struggling to allow continued growth and development while still protecting their existing and future drinking water resources from threats such as improper management of hazardous materials. To control new uses of hazardous materials near their water supplies, over 70 percent of Massachusetts' cities and towns have adopted water resource protection zoning controls. However, zoning does not address *existing* land uses which currently pose a threat to water supplies.

A water supply treatment plant and pump house with a public works garage 300 feet away.

A well-planned hazardous materials program protects not just the town's water resources, but businesses' and the town's financial interests. Such a program educates businesses on hazardous material management requirements, explicitly informs the business community what is expected of them, and decreases the potential future liability businesses may be unknowingly creating for themselves. A local program lets the town serve as a consultant, helping businesses protect themselves.

Communities have for years requested assistance from DEP's Drinking Water Program (DWP) on developing a local hazardous materials program. Recently, many towns have sought assistance with pursuing such a program in order to facilitate obtaining a waiver from certain water supply testing requirements under the Safe Drinking Water Act (SDWA). Under this

program, a public water supply is eligible for a monitoring waiver if it can meet specified water quality criteria and water supply protection requirements. One means of meeting the protection criteria is to adopt and implement a local hazardous materials regulation. If the water supply's waiver application is approved, the water supply (and, in turn, its ratepayers) will save thousands of dollars. In the last three-year testing period, towns with approved waivers saved ***$8 million***.

In 1996, there were 150 communities in Massachusetts with hazardous material controls. The content and effectiveness of these controls varies by community. Some target storage of hazardous materials, while others focus on emergency planning in the event of a large spill. Some controls have been implemented thoroughly and in cooperation with the business community, whereas others have stalled, lacking the financial or political resources for proper implementation. This guide incorporates the best strategies in several existing hazardous material bylaws and health regulations, as well as input from water supply and hazardous material specialists (see Section VIII), and should provide towns with the tools to plan, draft, and implement an effective local program.

PURPOSE

The purpose of this document is to:

- provide communities with a realistic guide to planning, drafting, and implementing responsible hazardous materials controls; and
- provide consistency among towns enacting such controls.

Towns with the most successful programs have followed an approach comparable to the methods outlined herein. Such a program protects the public from health concerns associated with a contaminated water supply and protects the town and industry from the financial costs of having to either clean up a water supply or develop a new one.

I. The Problem

As of June 1997, 7307 sites in Massachusetts had experienced a confirmed release of oil or hazardous materials. Of those 7307 sites, 4115 (56%) have had confirmed releases to groundwater.

How has the release of hazardous materials impacted public drinking water supplies? As of June 1992, 74 communities in the Commonwealth (more than 1 in 5) had experienced contamination in 174 public drinking water sources. This contamination caused the temporary or permanent loss of the water supply, often requiring expensive treatment and/or development of a new supply (the costs of which often exceed one million dollars). Over 50% of this public water supply contamination resulted from improper management of hazardous materials.

Volatile organic compounds (VOCs) such as trichloroethylene or benzene have been the source of contamination at 106 public supply wells. VOCs are compounds used ubiquitously as degreasers, parts cleaners, and solvents, and are found in many businesses, including:

- vehicle maintenance garages;
- dry cleaners;
- auto body shops;
- furniture stripping operations;
- metal plating operations;
- machine shops;
- educational and vocational shops; and
- many other industries.

Small businesses are often under-inspected by state agencies which must prioritize larger operations. Operators of these businesses are often unaware of how to properly manage their hazardous materials. Often, they may not even be aware that the business is located near a public water supply.

The result is that these smaller businesses often pose unintentional risks to water supply resources. These risks, posed by businesses, usually arise from a lack of education and training.

II. The Solution

Holding businesses accountable to a local control, and implementing that control in a cooperative fashion, can be a good solution. A well-implemented hazardous materials program protects a town's drinking water resources from discharges of hazardous materials and minimizes the threat of economic losses to the town and relevant businesses due to such discharges.

The Department believes that a program developed from this guidance will be a step toward sufficiently addressing hazardous material threats to drinking water supplies. The goal should not be to develop the most restrictive program possible, planning for every conceivable contingency or problem. The Department intends that this guide be used to implement practical, real-world solutions to common threats to water resources. The impulse to expand upon the restrictions set forth here should be resisted unless there is specific scientific or locational data on which to base more stringent controls. In the event that a municipality wishes to increase the level of regulation beyond that set forth in this document, you may wish to consult DEP staff at (617) 292-5770.

Issues to be addressed in such a rule may include, but should not be limited to, specifications for hazardous material storage, hazardous material registration, and emergency planning. In particular, a strong field inspection program assuring proper hazardous material storage may be the most cost-effective tool a community has in minimizing the threats posed by improper hazardous materials management.

Other regulatory tools for protecting water supplies include implementation of an Aquifer Protection Bylaw (to restrict future high-risk land uses in Wellhead Protection Areas), a Floor Drain Health Regulation (to eliminate existing high risk discharges to the ground), or an Underground Storage Tank Bylaw. Models and examples of such regulations may be obtained from the DEP Drinking Water Program at (617) 292-5770. The Department's non-point source "Mega-manual" (mailed to every municipality's Conservation Commission in Fall 1993) also contains models for several types of environmental regulations.

The Department recommends that any local hazardous materials program targeting businesses be instituted in conjunction with a local hazardous materials collection program for residents. For more information on developing such a program, contact the Department's Household Hazardous Waste Hotline at 1 (800) 343-3420.

III. Benefits and Costs

Both implementing and complying with a local hazardous materials program have associated financial costs. However, the environmental and financial benefits of a program far outweigh these costs in most cases.

A. Benefits

Benefits to the business community include:

- protection of financial investments by minimizing the future liability associated with poor hazardous materials management practices;
- assistance in complying with certain existing regulatory requirements;
- education on their proximity to public water supplies and the impact the management of hazardous materials may have on those water supplies; and
- access to pollution prevention opportunities, strategies, and techniques.

Benefits to the town include:

- protection of water supply and related financial investments;
- provision of explicit authority to hold local businesses accountable for proper management of these materials;
- protection from financial hardship by minimizing the chances of future liability associated with poor hazardous materials management practices at municipal facilities; and
- strengthening of Water Department application for a waiver from certain SDWA testing requirements (waiver would save local ratepayers thousands of dollars per testing period).

Benefits to the Department include:

- protection of the increasingly precious water supply resources which remain in the state;
- increased oversight of facilities which are under-inspected by state agencies;
- heightened understanding of water supply protection programs within the business community;
- inclusion of standards for storage of non-waste hazardous materials;
- encouragement of pollution prevention; and
- positive example for other cities and towns.

B. Costs

Costs to the businesses community include:

- cost of materials needed to comply with the program (e.g., spill containment kits, storage berms);
- possible registration fee with the town; and

- employee costs to ensure compliance with the program.

Costs to the town include:

- employee costs associated with running the inspection and registration program; and
- compliance costs for public works garages and other municipal facilities.

IV. The Scope of the Program

Address the following issues *prior to drafting* a hazardous materials bylaw or health regulation:

A. Priority Areas: Town-wide or Geographically Targeted?
In general, hazardous material programs are either implemented town-wide, or they are targeted to certain priority protection areas. The Department recommends the latter strategy, with the requirements applying only in the recharge areas for public supply wells and watersheds for reservoirs and river sources (see *Section V. Step 1* for definitions of Zone I, II, IWPA, Zones A, B, C). This approach will help the community better understand the motivation behind the program and takes fewer town resources to implement. Other areas such as potential water supply resources and areas served by private wells may also be targeted as priority resource areas.

Contact the municipal water supply superintendent or DEP's regional office to find out the boundaries of these water supply protection areas. Geographic Information Systems (GIS) maps, showing boundaries of many recharge areas and watersheds for public drinking water sources, are also available for viewing at DEP's Boston and regional offices.

The priority protection areas often do not fall within a single town boundary. The watershed of a public drinking water reservoir, for example, may encompass several cities and towns, or parts of those areas, as well as areas of other states. The Executive Office of Environmental Affairs (EOEA) recognizes this complex issue and has developed and implemented the Watershed Initiative in the twenty-seven river basins in Massachusetts.

The Watershed Initiative is a phased, five-year cyclical program to collect and share water resource information, assess the impacts to water resources, and develop and implement activities to protect and improve these areas. Staff in DEP's regional offices participate on the watershed teams and can be contacted for information about your watershed(s).

B. Land Uses
Conduct a land use inventory of, at minimum, the priority protection areas. Inventories of this type will identify potential sources of contamination of the water supplies and other resources.

Suggested Sources:

- This step is most easily initiated by conducting a thorough "drive by" survey. However, additional work such as the identification of tenants of unmarked buildings and the identification of industrial processes and their associated hazardous materials is strongly recommended.
- Land use surveys done by the town water supplier for a Safe Drinking Water Act monitoring waiver application or for the Department's statistical reporting forms may provide useful data.
- GIS maps, showing public drinking water sources, tributaries, watershed boundaries, recharge areas of public wells, other natural resources, roads, permitted discharges to ground and surface waters, and land use data layers, may be obtained from the MassGIS Office (617) 727-5227 x322. Maps containing this information for drinking water reservoirs may be viewed at DEP's Boston and regional offices.
- Reports done by Regional Planning Agencies often have detailed land use information.
- It may also be useful to note any location that is listed as a confirmed or potential site of release of oil or hazardous material; lists of these hazardous waste contaminated sites are available from the State House Bookstore.
- Other sources of information on land uses include the Local Emergency Planning Committee (LEPC), lists of hazardous waste generators available through regional Department offices, and the local fire department.

C. Resources

Plan for the resources necessary to implement the program. Questions to consider are:

- How many businesses will be covered by the program?
- Should certain businesses or industries be exempt?
- Should a registration component be included, and if so, how often will the registration be required?
- How often will businesses be inspected? At minimum, passage of the bylaw or regulation should incorporate the allocation of staff resources sufficient for the inspection of each facility on a minimum schedule, such as once per year.

D. Bylaw or Regulation?

If a town decides that a hazardous material control is needed, it must determine whether a health regulation or a bylaw will be adopted. Either method has advantages. A health regulation may be adopted by a vote of the local Board of Health. It does not require approval at Town Meeting. A bylaw requires approval at Town Meeting, a process which provides

extraordinary opportunities to educate both the community and local businesses about the relationship between hazardous materials management and water supply protection. Though coordination with business and residents throughout this process may lengthen the time taken to enact the rule, this mechanism can provide the foundation for long-term success of the program (i.e. the community will be more likely to support it, and subject facilities will understand better what is expected of them).

E. Hazardous Material Definition

Understand the definition you choose for hazardous materials (see "V. Step 1" below); this definition will affect the scope of the materials under jurisdiction of the program. Once in place, make lists of subject materials readily available to the public and those businesses affected by the program.

F. Household Hazardous Materials

Hazardous materials used in Massachusetts households may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances which can contaminate ground and surface waters through improper disposal. A comprehensive local management program for hazardous materials may include permanent collection centers for high volume household wastes such as used motor oil, batteries, paints, and cleaners, and regional collection of low volume wastes. An educational component, focusing on the problems associated with disposing of these materials in landfills, septic systems, wastewater treatment plants, storm drains, and on the ground, is important to the success of local collection efforts. A variety of options is also available to substitute less hazardous substances for many products used in the home.

DEP's Hazardous Waste Management Program (617) 292-5853, Solid Waste Program (617) 292-5861, and the Office of Technical Assistance (617) 727-3260 can be contacted to obtain information about household hazardous materials, training for local officials, educational materials, and grant programs.

V. Steps In Drafting the Bylaw Or Health Regulation

As noted above in item "IV.D", inclusion of the business community when drafting the regulation can be a vital step in the long-term success of the program. A drafting process allowing businesses to provide input and feedback will not only result in a stronger regulation, but it will facilitate compliance with the regulation once it is enacted. Relevant municipal officials should also be contacted, including: board of health members and agents, the fire chief, the water supplier, planning board members, building department staff, town counsel, and the board of selectmen.

In this section, normal print represents a discussion of the topic at hand; the larger, indented print represents possible wording to be incorporated into the bylaw for each topic.

Step 1. Defining Terms:

Terms used within the text of the document should be defined. The following definitions are included, but may be modified according to the town's needs.

> Commercial or 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; wholesale establishments; service or retail establishments; printing or publishing establishments; research and development facilities; small quantity or very small quantity generators of hazardous waste as defined by the Department; laboratories; hospitals; schools. This definition shall specifically include, but not be limited to: all vehicle body work or repair facilities, machine shops, dry cleaners, photo-processing labs, funeral homes, and furniture strippers.
>
> Department: The Massachusetts Department of Environmental Protection
>
> Discharge: The accidental or intentional disposal, deposit, injection, dumping, spilling, leaking, incineration, or placing of toxic or hazardous material upon or into any land or water so that such hazardous material

or any constituent thereof may enter the land or waters of the Commonwealth. Discharge includes, without limitation, leakage of such materials from failed or discarded containers or storage systems and disposal of such materials into any on-site leaching structure or sewage disposal system.

One of the most critical choices in the drafting process is how to define "hazardous material." In general, two universes of hazardous materials exist: virgin, unused products, and waste products. The bylaw or regulation may target either or both of these universes.

Hazardous wastes are regulated by both the state and federal government; however, these agencies must focus on larger facilities. There are currently 600 Large Quantity Generators of hazardous waste, 3000 Small Quantity Generators, and 18,000 Very Small Quantity Generators located in the state. The focus of this control should be on the generators that are not sufficiently addressed at the state and federal level, but which still pose a threat to water supplies (Very Small Quantity Generators and Small Quantity Generators - see "Step 5"). Including "waste" in the definition provides additional flexibility in regulating smaller facilities. The majority of the towns surveyed for this guidance document have proceeded as such and have implemented the regulation or bylaw successfully.

Hazardous materials that are not *wastes* are not regulated by the Department (though if these materials are spilled or otherwise disposed of, they are considered a hazardous waste and come under Department jurisdiction). Other state and federal regulations (notably OSHA and the state Fire Code) do address non-waste hazardous materials, but in a limited environmental scope. The mismanagement of **all** hazardous materials (virgin products and wastes) poses a threat to water resources. A document that addresses all hazardous materials, without contradicting state or federal regulations, is much more comprehensive and allows a town to address threats that the state and federal agencies have much less authority over. Hazardous materials from households are not regulated as hazardous waste though they may contain the same hazardous materials that regulated businesses use.

Hazardous Material: A product, waste or combination of substances which because of its quantity, concentration, or physical, chemical, toxic, radioactive or infectious characteristics may reasonably pose a significant, actual, or potential hazard to human health, safety, welfare, or the environment when improperly treated, stored, transported, used, disposed of, 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 Massachusetts General Laws (MGL) Chapters 21C and 21E using the Massachusetts Oil and Hazardous Material List (in 310 CMR 40.0000).

The definition may also include acids and alkalis, solvents, thinners, and pesticides.

Interim Wellhead Protection Area (IWPA): For public supply wells or wellfields that lack a Department approved Zone II, the Department applies a protective radius called an interim wellhead protection area. This IWPA shall be a one-half mile radius measured from the well or wellfield for sources whose approved pumping rate is 100,000 gpd or greater. For wells that pump less than 100,000 gpd, the IWPA radius is proportional to the well's approved daily volume which may be calculated according to the following equation: IWPA radius in feet = [32 x pumping rate in gallons per minute] + 400.

Materials Safety Data Sheet (MSDS): Information sheets, available by law from the manufacturer, containing data on physical characteristics, flammability, explosivity, reactivity, and the health and safety hazards of specific chemicals, as well as information relative to procedures recommended for spills and leaks of specific chemicals and special protection and precautions to be taken in the handling of specific chemicals.

Priority Protection Area: Any area designated as a Zone II or IWPA (as defined in this section) for a public drinking water supply well, or the Zones A, B or C of a public drinking water supply reservoir.

Reportable Quantity: The quantity of oil or hazardous material the release of which, or threat of release of which, requires notification to the Department under MGL c. 21E, s. 7, and/or 310 CMR 40.0350 through 310 CMR 40.0352.

Use of Hazardous Material: The handling, generation, treatment, storage, or management of hazardous materials.

Zone I: The protective radius required around a public water supply well or wellfield. For public water system wells with approved yields of 100,000 gpd or greater, the protective radius is 400 feet. Tubular wellfields require a 250 foot protective radius. Protective radii for all other public water system wells are determined by the following equation: Zone I radius in feet = (150 x log of pumping rate in gpd) - 350.

Zone II: That area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at safe yield with no recharge from precipitation). It is bounded by the groundwater divides which result from pumping the well and by the contact of the aquifer with less permeable materials such as till or bedrock. In some cases, Zone II shall extend upgradient to its point of intersection with prevailing hydrogeologic boundaries (a groundwater flow divide, a contact with till or bedrock, or a recharge boundary).

Zone A: a) The land area between the surface water source and the upper boundary of the bank; (b) the land area within a 400 foot lateral distance from the upper boundary of the bank of a Class A surface water source, as defined in 314 CMR 4.05(3)(a); and (c) the land area within a 200 foot lateral distance from the upper boundary of the bank of a tributary or associated surface water body.

Zone B: The land area within one-half mile of the upper boundary of the bank of a Class A surface water source, as defined in 314 CMR 4.05(3)(a), or edge of watershed, whichever is less. However, Zone B shall always include the land area within a 400 foot lateral distance from the upper boundary of the bank of the Class A surface water source.

Zone C: The land area not designated as Zone A or B within the watershed of a Class A surface water source as defined in 314 CMR 4.05(3)(a).

Step 2. Setting Prohibitions:

A 55-gallon drum of spent solvent is dumped on the ground behind a dry cleaning business. A town's primary water supply is contaminated as a result.

A painting contractor cleans her brushes with thinner over, and pours extra paint into, a storm drain, threatening the water quality of the downgradient reservoir.

These scenarios are representative of threats to public drinking water supplies. Water supplies in Massachusetts have been contaminated by equivalent activities. Towns should consider explicitly prohibiting certain activities within designated water supply protection area(s), and educating the residents and businesses of these prohibitions.

Below are three suggested prohibitions for, at minimum, the Priority Protection Area(s). Note: the transportation of hazardous materials is already regulated by DEP (through MGL c. 21C, 310 CMR 30.000), as well as the Department of Transportation.

A. Other than that which is allowed by other local, state, or federal laws, regulations, and/or permits, the discharge of hazardous materials within the limits of {town's} Priority Protection Area(s) (as defined in definitions above) is prohibited. This prohibition includes, but is not limited to, discharges of hazardous materials to: exposed and unsaturated soils; wetlands; surface water resources; ground water; sanitary sewers; storm drains; floor drains and sinks which discharge to the environment; and septic systems.

B. The sale and/or use of septic system additives or cleaners not specifically allowed by the Department (310 CMR 15.027 & 15.028) is prohibited.[1]

[1] This prohibition should be town-wide. Title 5 already prohibits the use of these septic additives, but prohibiting the sale of them within the town boundaries strengthens the existing law and is easier to enforce.

[2] The Department does not encourage the installation of new underground storage containers for gasoline in these areas either. However, as gasoline must be stored in this fashion, inclusion of such storage here would amount to a zoning restriction for gas stations and other fuel dispensing operations. The Department recommends that the issue be more appropriately addressed through a zoning bylaw.

C The installation of new underground
ontainers for hazardous materials
for gasoline[2] or for chemicals used
eatment of a public drinking water
prohibited in the {town}'s Priority
Area(s).

Illegal outdoor storage of hazardous waste (waste solv and

Step 3. Setting Storage Requirements:

A construction yard stores its 55-gallon drums of waste oil, antifreeze, and spent parts cleaner on soil. Sloppy management practices allow spills to the ground, much of which has either entered the soil or been washed away with the rain by the time inspectors arrive.

State inspectors note a 275-gallon heating oil tank placed above bare ground. Three months later, during winter, the tank ruptures, spilling the oil over the frozen ground to a storm drain. The owner's cost to clean up the spill is several thousand dollars. The installation of a concrete containment berm would have prevented this problem.

Illegal outdoor storage of hazardous waste (lacquer thinner) drums: no secondary containment.

Each of these preceding scenarios is a true story, represents a very common threat, and cost the owner thousands of dollars to address. Each release or spill was unintentional. A well-implemented hazardous materials program could easily have prevented each of these situations simply by working with businesses to maintain fundamental hazardous material storage requirements.

Perhaps the greatest role a local program can have in preventing hazardous materials from contaminating a water supply is to ensure proper storage. In general, hazardous materials should be stored indoors and in product tight containers. However, indoor storage is not always practical, and outdoor storage with proper containment is the next best solution. In some cases, a Material Safety Data Sheet (MSDS) may require specific alternative storage.

A common fear is that providing secondary containment for hazardous materials is a tremendous burden. This fear is unfounded. Simple containment mechanisms include: building a short (3-4 feet high), water-tight concrete block wall around the storage area; inserting 55-gallon drums into used larger drums; inserting small drums into used 55-gallon drums; and placing drums or containers over a containment tub. These solutions are not costly, but provide a tremendous benefit.

Several towns have addressed the issue of underground storage tanks in separate regulations. Examples of regulations currently in use are available from the Drinking Water Program, (617) 292-5770. However, towns may wish to incorporate tank standards (see Attachment) in a hazardous materials bylaw or regulation.

The following language may be used as a guide.

The following restrictions apply to all storage and labeling of hazardous materials within the limits of {town}'s Priority Protection Areas:

A. Aboveground Storage

The aboveground storage of hazardous materials must be in product-tight containers, in an orderly manner, with wastes stored separately from unused materials, and on an impervious surface.

1. Outdoor storage must be designed to contain spills of not less than 110% of the volume stored and prevent any flow of product to exposed soils or outside drains, and must be protected from the elements, accidental damage, and vandalism.[3]

2. Indoor storage must be designed (via a berm or other means of secondary containment) to prevent any flow of product to exposed soils, floor drains[4], or outside drains.[5]

B. Underground Storage Tanks: {See Attachment A}

[3] State hazardous waste regulations only require containment for hazardous *wastes* sufficient to hold 110% of the *largest* container, or 10% of the total possible volume of all containers, whichever is larger. The above language simplifies the containment language by making a uniform, non-conditional requirement. Since non-waste hazardous materials pose an equal threat to water resources as hazardous wastes and since they are not covered by the state hazardous waste regulations, they have also been included in this language.

[4] The state Underground Injection Control (UIC) regulations (310 CMR 27.00) prohibit the use of floor drains leading to subsurface leaching structures in hazardous material use and/or storage areas. Contact the UIC Program Coordinator at (617) 556-1165 for more information.

[5] State hazardous waste regulations require that hazardous *wastes* be stored on a surface that is "sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed." This language is one means of accomplishing this requirement, and includes non-waste hazardous materials in the scope (since they pose an equal threat and are the suspected source of contamination of numerous drinking water supplies in Massachusetts).

C. Labeling

1. Hazardous material storage areas must be clearly delineated, and signs must be posted noting the dedicated nature of the area.

2. Containers of all non-waste hazardous materials must be labeled with the name of the product or chemical, a listing of the physical and health hazards associated with it, and target organ effects from exposure.[6]

3. Containers of hazardous wastes must be labeled as a "Hazardous Waste," with the name of the waste (e.g., "Waste Oil"), Hazardous Waste Generator ID#, and the date the container began accumulating waste also being noted on the container.

Step 4. Setting Registration Requirements:

A spill occurs at a facility the town did not know managed hazardous materials. While investigating, the town realizes that if the facility had been meeting the standards of the town's program, the spill would have been contained and never reached the environment.

A fire occurs at an industrial facility. Public safety officials are unable to respond effectively because they do not know what materials are stored on site.

Avoiding scenarios such as these is the major benefit of including a registration component as part of a hazardous materials program. A detailed registration program, however, can quickly become very burdensome for a town (as well as industry) to implement. Decide up-front if resources are

6 These requirements are a subset of those required under OSHA Right-to-Know labeling standards (29 CFR 1910.1200) and should, therefore, be met for most materials in their original containers. However, faded labels are not always updated, and materials not stored in their original containers are not always in properly labeled containers (both situations are violations of the OSHA standards). Item "C.2" is intended to provide local power to address these and other common, high priority problems. Alternatively, a town may choose to refer to OSHA and omit this language.

available to implement a registration program to a degree where it will both provide valuable information and not use all available resources for implementation. If a useful registration program is not feasible, do not attempt to implement one; instead focus efforts on inspections, compliance, and education.

If resources are available to include a registration component, be realistic in how the registration is structured. For example, some towns require the registration of every chemical, a process that can demand the bulk of the implementing authority's time to manage. An easier method may be to require registration of product names accompanied by the corresponding Material Safety Data Sheets (MSDS). Alternatively, a program may allow registration of chemical groups by either use (e.g., oils, solvents/parts cleaners, paints...) or toxicity (e.g., according to the SARA Title III List of Lists). In any event, coordinate this component with public safety officials. If they do not need detailed lists of chemicals, then think twice before requiring it. If they need that information, seek their assistance in coordinating its development.

The Massachusetts Toxic Use Reduction Act (TURA) of 1989 requires large quantity toxic users to submit an annual toxics use reduction report to DEP. Certain chemicals manufactured, processed or otherwise used in amounts equal to or greater than 10,000 lbs. must be reported. The user is required to identify each chemical used, generated as byproduct, shipped as part of the finished product, as well as other information. This data may be used by local officials as a first step in, or in place of, a local registration process. Resources can be focused, therefore, on other parts of the local program, such as inspections. DEP's TURA Program can be contacted at (617) 292-5982 to obtain more detailed information about state registration requirements.

The frequency of registration will also depend upon the needs of the town and the resources available. Smaller towns with fewer facilities may require a yearly registration with fees to cover inspection costs, whereas a larger town may require registration with fees only once every three years.

The following language may be used as a guide.

> In order that the Town, the abutters and public safety officials may know of the existence and locations where hazardous materials are stored, every owner or operator of a commercial or industrial establishment (including municipal, state and federal operations) which uses hazardous materials totaling fifty gallons liquid volume or twenty-five pounds dry weight or more in a calendar year and which is located within the limits of {town}'s Priority Protection Areas

must register with the {town's implementing authority} on or before {date} and every three years thereafter.[7] A registration fee of {amount} shall be paid to the {implementing authority} at the time of submission of the registration form.[8]

A. Registration Requirements
The following information must be submitted as part of the registration process:

1. A map or drawing locating areas where hazardous materials are stored, handled, and/or in use. The map shall be drawn to scale, on 8½" x 11" paper (or an as built plan of the facility may be substituted), with a north arrow and names of bordering streets clearly noted. If storage occurs both indoors and outdoors, a map for each of the indoor and outdoor storage areas shall be submitted. Areas in which emergency equipment such as spill kits and medical supplies are kept must also be identified on the map, and submitted to the {implementing authority} as well as the fire department.

2. A written description shall accompany the map and specify: product names (chemical names or types may be substituted here); MSDS sheets for each product; quantities of materials in each location; the type of storage container (e.g., 55 gallon drum, underground storage tank); and anticipated on-site additions, for {the subject registration period}, of hazardous materials meeting the threshold quantity noted above.

3. Information pertaining to the disposal of hazardous wastes: Hazardous Waste Generator ID number, name of the hazardous waste transporter(s), and methods of handling spills of a volume under the reportable quantity (as defined in this document). Facilities without an ID# may contact the

[7] Businesses which do not meet the threshold to register with the town are still subject to the other requirements of the regulation.

[8] Many businesses may resent having to pay a registration fee to the town. However, a well-implemented program will provide sufficient services to the business so that the business should feel it is getting its money's worth.

Department at 1-800-343-3420 to obtain one.

B. Updating of Registration

1. If, during or after the registration period, a change in ownership and/or occupancy of a business occurs, an updated registration must be submitted to the {implementing authority} within thirty days. Registration is not transferable between past and future owners of a business and/or occupants of a premise.

2. If any of the following activities occur during or after the registration period, the corresponding information in the business' registration package shall be highlighted and corrected at the time of re-registration:

   a. remodeling, operating changes, or expansion of an existing facility which would modify the type or quantity of hazardous materials managed;

   b. changes in the location or method of use, storage, manufacture or handling of hazardous materials in any facility; and/or

   c. addition of new hazardous materials meeting the threshold quantity listed above which are not anticipated in the registration (under "A.2" above).

C. Facility Closure
In the event that a facility permanently ceases operations during the subject registration period, the owner or operator of the facility shall notify the {implementing authority} of said closure at least 30 days before the closure.

Step 5. Setting Exclusions to the Regulation:

A large industrial facility is inspected by the state regularly. An on-site environmental coordinator is responsible for all hazardous material compliance activities, spending most of her time filing compliance reports with relevant state and federal agencies. During the last state inspection, several minor violations were identified and Subsequently corrected. The local control is almost entirely redundant and, therefore, not an efficient use of time and resources.

A retail store sells paints, lacquer thinner, herbicides, and other potentially hazardous materials. The products are properly labeled by the manufacturer, but the town regulation requires all storage areas of hazardous materials to be labeled (including retail shelf displays).

These and other scenarios should be avoided by explicitly identifying exemptions to the rule in the text. The focus of this document should be on smaller facilities that are currently under-inspected, and should not address materials and facilities that are sufficiently regulated by the state and/or federal government. Excessive duplication of state and federal efforts will hinder the town's implementation efforts and unnecessarily burden businesses, while providing no real additional environmental protection.

The following exemptions are recommended.

The following materials, activities, and facilities are not within the scope of authority of this regulation:

A. Household waste including garbage, trash, and domestic sanitary sewage.[9]

B. Wastes generated from the growing of agricultural crops and the raising of animals, including manure which is returned to the soil as fertilizer.

C. The labeling of hazardous materials which are or will be exposed for sale at retail establishments.

D. Treatment, Storage, and Disposal Facilities as defined by 310 CMR 30.000.

E. Large Quantity Generators of hazardous wastes as defined by 310 CMR 30.000.

9 Municipalities are encouraged to establish both household hazardous waste collection programs, and an automotive recycling center for "do-it-yourselfers." The Department has a municipal grant program for towns to develop local automotive recycling and used paint recycling programs. For further information, contact the Department's Solid Waste Program at (617) 292-5861.

F. Facilities that file Tier II reports as defined by SARA Title III.

Step 6. Setting Requirements for Emergencies:

A 20-gallon drum of spent solvent at a furniture stripping shop is knocked over by accident, spilling the contents down a floor drain and into the town sewer before anyone can find some rags to stop the flow into the drain.

An employee at an auto garage sees the gas tank in a car he's working on spring a leak, releasing 10 gallons of gas to the driveway. Not knowing what to do, he runs to find the manager. In the meantime, the gas has crossed the drive and entered the storm drain.

Since proper management of hazardous materials depends so heavily on variables such as human interaction and mechanical integrity, any local hazardous materials program should consider a component to plan for a spill or accident. A cooperative agreement with the fire department as to the nature of the notification and spill response requirements should be arranged prior to drafting any emergency notification or planning section.

The following language may be used as a guide.

A. Notification:
In case of a spill and/or loss of hazardous material *at or above the "reportable quantity"* (as defined herein), the owner/operator must immediately report the spill or loss to the fire department. Notification to the board of health shall occur within 24 hours of the spill. Notification to the Department's Emergency Response Section shall be in accordance with 310 CMR 40.0000.

B. Planning:
The following precautions shall be taken by all facilities subject to the registration requirements set forth in Step 4 above:

1. The map and written description specified above in Step 4.A.1 must also be posted at one of the following on-site locations: guard shack, fire alarm box, sprinkler riser, or other location acceptable to the head of the fire department. The location of this

posting must be specified during registration.

2. MSDS sheets must be kept on file at all times at an on-site location, and must be readily available during routine inspections and in the event of an emergency.

3. Facilities shall provide adequate and reasonable employee training programs to ensure the proper use, storage, transportation and handling of hazardous materials.

4. Facilities shall provide emergency spill containment kits on site and in accessible areas, and all employees shall be trained in their use.

Step 7. Setting Penalties:

Penalties may serve to encourage facilities to comply with the program. Nonetheless, with a reasonable phase-in period for compliance (e.g., 1 year) specified in the document and adequate preparation working with facilities during that time period and afterwards, penalties greater than a "ticket" (see Section VI.D.) should not often be necessary.

The following is considered standard language for either a health regulation or bylaw.

> Failure to comply with provisions of this bylaw/regulation by {date} will result in the levy of fines of not less than $200.00, nor more than $1000.00. Each day's failure to comply with the provisions of this regulation shall constitute a separate violation.

Step 8. Adding Severability Clause:

The following is also considered standard language for either a health regulation or bylaw.

Each provision of this regulation shall be construed as separate to the end that, if any provision, or sentence, clause or phrase thereof, shall be held invalid for any reason, the remainder of that section and all other sections shall continue in full force and effect.

VI. Implementation

A. Coordination with other Municipal Officials

Designate a health agent or other individual to be primarily responsible for implementing the bylaw or regulation.

Particular efforts should be made to coordinate the program with the municipal fire department during both the planning and implementation phases of the program. Coordinate the program with other municipal officials, such as the selectmen, councilors, water supplier, and building inspector (some towns require the board of health to comment on all proposed buildings involving hazardous materials storage). When these officials are involved from the outset, long-term implementation and enforcement of the program are much more effective.

B. Education

Educate facility operators and public officials on the relationships between proper storage of hazardous materials, water supply protection, and public health.

Provide a means of rewarding facilities that demonstrate exemplary performance with respect to the program. A dated certificate, for example, acknowledging this performance provides the businesses with positive reinforcement from the town, and with a marketing tool which projects environmental responsibility to customers.

Provide businesses with information on agencies which provide technical assistance to hazardous material users regarding the reduction of the use of toxic materials and/or the generation of hazardous wastes (both of which reduce business costs while minimizing threats to the environment). Some sources of information are:

- The MA Office of Technical Assistance, (617) 727-3260, provides free, confidential, technical assistance (on-site assessments, financial evaluations, and other resources).

- The Department's Toxics Use Reduction Implementation Team, (617) 292-5870, provides guidance material on toxics use reduction planning.

- The Toxics Use Reduction Institute, (508) 934-3262, provides courses for certification of Toxics Use Reduction Planners.

Institute a local household hazardous materials collection program so that town residents will have a responsible and accessible means of disposing of the hazardous wastes they generate on a regular basis.

C. Inspections

Inspections are the key to successful implementation of the program. They provide the best means of educating businesses on program requirements. Often, solutions to violations can be developed during the inspection. Since the goal of the program is pollution prevention, working cooperatively with business owners and operators and assisting them in meeting the program's requirements is the most effective approach. See the attached sample inspection form.

Let affected facilities know the specified time frame within which they must comply with
the bylaw or regulation. Every effort should be made to visit each facility within that time frame in order to go over the requirements of the rule.

Begin facility inspections as soon as possible. Do not wait for a registration from a facility before inspecting it; the inspection often serves as a catalyst in the registration process.

Use the inspection to educate the facility owner or operator:

- Show the facility operator a map indicating where the facility lies in relation to the priority protection areas.

- Discuss pollution prevention techniques and other Best Management Practices (BMPs) such as minimizing the use of solvents whenever possible and operating a "dry shop" (using absorbents to clean up spills, using drip pans to prevent spills, etc.). *Such efforts not only serve to minimize environmental threats, they often cut operating costs.* Information and fact sheets on BMPs and hazardous waste regulations for a variety of industries may be obtained from the DEP UIC Program at (617) 556-1165 and the DEP Hazardous Waste Compliance Hotline at (617) 292-5898.

D. Enforcement

Enforcement is the backbone of any local bylaw or regulation. Nonetheless, following an inspection, a simple phone call to the shop owner or a follow-up inspection may be all that is needed to explain a requirement and bring a facility into compliance. Most business owners will comply if they understand what is expected of them. For individuals unwilling to comply voluntarily, more serious enforcement such as a fine or court action may be needed. However, with the proper approach and foresight, these situations can be minimized.

An alternative or additional enforcement tool that the legislature has provided to municipalities is "ticketing". The "ticketing" statute, MGL c.40, s.21D, provides that any ordinance or bylaw may be enforced by this method as long as the violation is subject to a specific penalty. Use of the "ticketing" procedure allows an enforcement agent to write a ticket, usually for $20-$50, which provides for a specific sum of money to be paid as a penalty for the violation of a local bylaw. NOTE: this statute has undergone, and continues

to undergo, major revisions with respect to its implementation. Prior to using this tool, consult with your town counsel or city solicitor for the most current statutory language and for advice about how to proceed.

A truck maintenance garage across the street from a public water supply pumphouse is an ideal place to start inspections.

VII. Pertinent Regulations

TOPIC	LAW	REGULATION	AGENCY
Drinking Water	MGL c.111 s.5G, 8G 17, and 159-174	310 CMR 22.00	DEP
Emergency Response & Hazardous Waste Site Assessment/ Cleanup	MGL c.21E	310 CMR 40.0000	DEP
Underground Injection Control (floor drains...)	MGL c.111 s.159-160 c.21 s.26-53	310 CMR 27.00	DEP
Hazardous Waste Management/Transport	MGL c.21C	310 CMR 30.000	DEP
Hazardous Substance Labeling	MGL c.94B, MGL c.21C MGL c.21E	310 CMR 40.0000 310 CMR 30.000, 105 CMR 650.00	DEP & DPH
Underground Tanks/Cont.	MGL c.22 5.14; c.148 s.9,10,28,37	527 CMR 9.00	Board of Fire Prevention

To order, contact:

STATE HOUSE BOOKSTORE
The State House-Room 116
Boston, MA
(617) 727-2834

STATE HOUSE WEST
21 Elm Street
Springfield, MA
(413) 784-1376

VIII. Acknowledgments

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DEP:	Christine Chisholm, former intern, DWP Jude Hutchinson, Tara Gallagher, Mary Wheeler, & Ron Stelline, DWP Nancy Wrenn, Hazardous Materials Program Ann Lowery, Office of General Counsel Deirdre Doherty, Water Pollution Control Program Arleen O'Donnell, Bureau of Resource Protection
Outside DEP:	Gina McCarthy, TURA Administrative Council Executive Director * Geoffrey Brown, Associated Industries of MA* Ethan Mascoop, MA Health Officers Association* Andrea Adams, Cape Cod Commission* Mary Ellen Schloss, Metropolitan Area Planning Council* Lynn Rubinstein, MA Municipal Association* Leon Lataille, MA Waterworks Association & MWRA* Gretchen Latowsky, John Snow Institute Jane Peirce, Franklin County Commission

* Appointed by Governor as a member of the Massachusetts Hazardous Waste Management Advisory Committee

ATTACHMENT A

Underground Storage Tanks

The following information may be added by towns that currently do not regulate underground storage tanks (USTs) in Priority Protection Areas. This section cannot supersede any state or federal regulations pertaining to USTs but is designed to enhance current regulations. In particular, state (Fire Code) and federal requirements mandate that by 12/22/98, all unprotected steel USTs must be either upgraded or taken out of service, though heating oil tanks are not subject to this requirement. Towns may also wish to include language regarding the replacement of underground feedlines. Under federal and state law, certain USTs must be registered with both the Department of Public Safety and the local fire department; towns may wish to expand the universe of tanks needing these registrations, but such requirements should be coordinated in advance with the relevant departments.

B. Underground Storage Tanks:

1. Existing and future underground storage tanks (USTs) for hazardous materials must be registered with the {implementing authority}. The owners/users of each such tank must file information with the {implementing authority} concerning the size, type, date of installation, and location of each tank, leak detection and containment devices, and the type of hazardous material stored in each tank. A filing fee of {amount} shall be paid to the {implementing authority} upon submittal of the filing. The filing must take place within {period of time} of the date of adoption of this regulation, and must be updated every {period of time} thereafter. A fire department permit shall be included along with a sketch map showing the exact location of each tank on the property.

2. Any underground heating oil storage tank which does not meet current standards (as defined in the Fire Code, January 1997) for new and replacement tanks and is fifteen (15) years or older and is located within priority protection areas shall be removed and replaced or upgraded, to meet current standards, within five (5) years of the effective date of this bylaw/regulation, or sooner if specifically directed by the {local implementing authority}. Such residential heating oil tanks must be replaced with an aboveground storage tank.

New installations of underground heating oil tanks are addressed in Section V. (*Steps In Drafting the Bylaw or Health Regulation)* -- Step 2.C of this document.

ATTACHMENT B

Sample Inspection Form

Date of Inspection: _____ Inspector(s):

_____

_____

GENERAL INFORMATION:

Facility: _____

Address: _____

Contact Name: _____

Phone: _____

INSPECTION QUESTIONS:

Housekeeping

1. How are housekeeping practices? (Is the place clean? Are spills cleaned up? Is storage of hazardous materials orderly? These may serve as indicators of a commitment to comply with the program.)

_____

_____

2. What BMPs has the facility implemented (e.g., drip pans, spill cleanup, recycling where possible)?

_____

_____

Storage

3. Does storage correspond to information provided in registration? _____YES _____NO (explain)

_____

_____

4. Are:

containers covered?	_____ YES	_____ NO
containers on an impervious surface?.....	_____ YES	_____ NO
materials in product-tight containers?	_____ YES	_____ NO
wastes stored separately from materials?.....	_____ YES	_____ NO
outdoor storage areas bermed (110% capacity)?.....	_____ YES	_____ NO
routes to soil isolated from potential spills?...	_____ YES	_____ NO

5. How are containers of hazardous materials labeled? Are the minimum requirements being met?

_____

General

6. How are hazardous wastes disposed of? Ask for a copy of a hazardous waste manifest form. Does the EPA ID# on the form correspond to the number submitted in the facility's registration?

_____

_____

7. Are MSDS readily available? _____ YES _____ NO

8. Are maps posted as required under Step 6.B? _____ YES _____ NO

9. Do the quantities of materials present on the property match quantities reported on the registration?

_____

10. Do floor drains (sinks, storm drains, etc.) in hazardous material storage or handling areas discharge to subsurface leaching structures? _____YES _____NO

Final Comments

11. What issues of non-compliance need to be addressed by the facility?

_____

_____

12. General Comments:

_____

_____

_____

13. Don't forget to walk outside around the entire facility, if possible. Comments:

_____

_____

_____

ATTACHMENT C

Sample Registration Form

{Most of the information asked for on this form reflects a specific requirement of the bylaw/regulation. The registration form should be completed with the text of the document in mind.}

GENERAL INFORMATION: **Date** _____

1. Facility Name: _____

   Phone Number: _____

   Facility Owner: _____

   Address: _____

2. Property Owner: _____

   Phone Number: _____

   Address: _____

3. Brief description of the business or industrial operations being conducted on-site:

_____

_____

4. Is the Facility in a Priority Protection Area? _____ YES _____ NO

5. Is the Facility a Listed DEP 21E Site? _____ YES _____ NO

6. Which employees handle hazardous materials?

_____

7. Describe any training given to employees on hazardous materials management.

_____

NON-WASTE HAZARDOUS MATERIALS:

8. Non-Waste Hazardous Materials

Liquid Products | Estimated Quantity/Year | Type of Storage

_____

_____

_____

_____

Solid Products

_____

_____

_____

_____

9. How are the storage areas for these materials labeled?

_____

10. How are these materials labeled?

_____

11. How are these materials stored? (On an impervious surface? Is secondary containment provided?)

_____

HAZARDOUS WASTES:

12. Hazardous Wastes

Hazardous Waste Generator ID # _____

Product	Estimated Quantity/Year	Type of Storage	Transporter

13. How are the hazardous waste storage areas marked?

_____

14. How are hazardous wastes labeled?

_____

15. How are hazardous wastes stored? (On an impervious surface? Is secondary containment provided?)

_____

16. What are the spill containment procedures?

_____

ATTACHMENTS:

The following items must be submitted as part of the registration process:

- the map specified in step 4.A.1 of the document, and
- the written description specified in step 4.A.2 of the document.